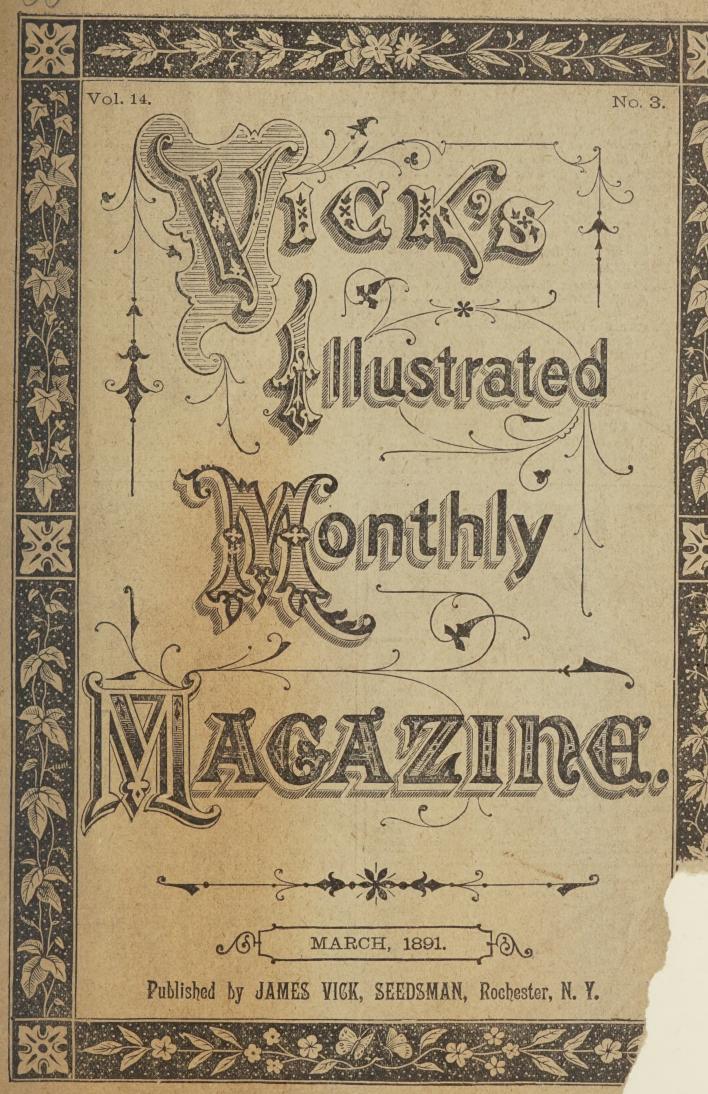
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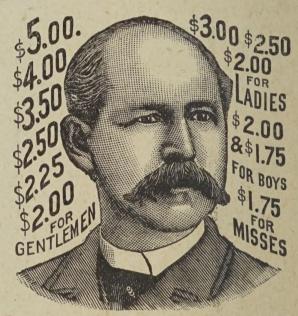
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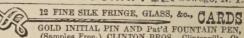
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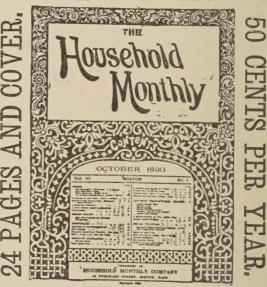
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money or management until every progressive city, at least, will be supplied well or poorly, with public pleasure grounds. On the whole, we have but little fear that such grounds will be greatly lacking, either in necessary extent or proper equipment. Municipal pride and a wide spread intelligence in regard to ornamental horticulture of the leading minds of society, everywhere, will provide against shabbiness, both in the establishment and the care of city parks. Vicious politics may sometimes do dam-

the pleasure of a partly realized hope we rejoice in the prospect that our cities will become beautiful other than in brick and mortar and wood, and in a beauty of a higher order; for architecture, no matter how elegant or graceful in its structure is inferior in its pleasing effects to good displays of garden art. To this appreciation of gardening the most of our people are but partly educated, but enough so to make them desirous to know more, and year by year, in this city and that, we see unfolding broad areas of beauty

such

clothed in verdure and bloom and presenting the most beautiful specimens of trees and shrubs and their graceful groupings.

But it is not enough that cities should have these ornamental grounds. In these pages we have striven to incite the love of beautiful gardening in the country dweller as well as in the citizen, and especially to make pleasant the grounds surrounding the country school house, and the country church, and those of the rural cemetery. If this can be done, the improvement will not stop until every farm house and cottage is embowered in beauty. At this time we wish especially to consider the conditions of country villages, and to what extent public ornamental grounds may bedesirable to such communities. Villages containing from five to ten thousand inhabitants have both the ability and reason to establish public ornamental grounds.

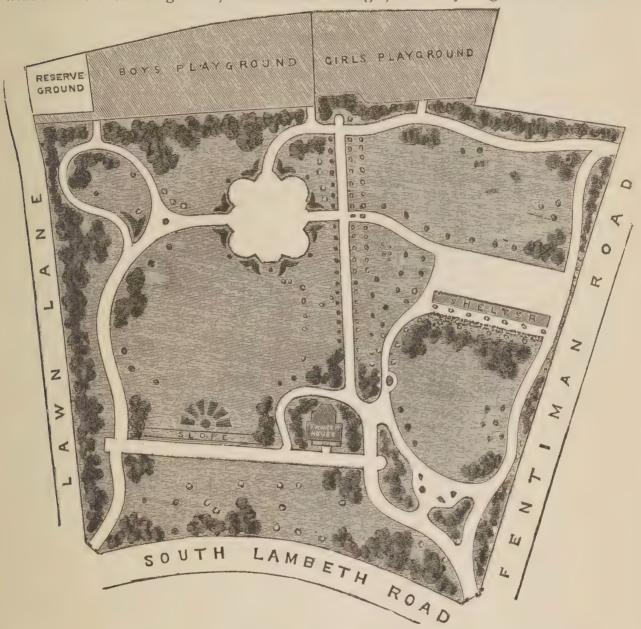
Let us briefly consider some of the reasons for the establishment of public grounds in villages: First, pleasant and handsome grounds of ample space, of easy access will be sure to be sufficiently attractive to become a common rendezvous whenever the opportunity is available. To spend a considerable portion of one's time in the open air is a necessity for the maintenance of a high standard of health, or such a standdard as high as may be for each individual. The most usual form of locomotion must always be that of walking. In the ordinary village there can be no resort except to the streets or the outlying country roads. The latter are much of the time in a most forbidding condition for pedestrians, and especially for children and women, the ones most particularly to be benefited by such walks, since the male population, in great part by the necessities of occupation, secure the advantages of healthful exercise. As all of us know, who are familiar with village life, the one daily resort is the sidewalk, and usually, too, that of the busiest street, since here one is most apt to meet familiar faces, and is able to receive and give recognition. and occasionally to have a little chat and hear a bit of social news. But this meeting ground, though the best the place affords, has numberless disagreeable features. With business objects in view, one may travel the streets with unconcern for many things which are only too painfully apparent when one walks for pleasure. But besides the positively undesirable or painful sights one is apt to encounter on the streets, there is the greater fault of a lack of the beautiful, ennobling objects of nature. Thus to have one's life practically bounded by the pavements and walls of the village thoroughfare is to depress the mind and deaden the sensibilities of those who, in the ordinary walks of life, must make this their stamping ground.

Young children and nurses must have exercise, and for them the daily traverse of the streets become as monotonous and uninspiring as for others. How much more pleasing to pass through handsome grounds with various beautiful objects, and which change their attractions with the varying seasons, from the bursting bud of springtime to the falling of the autumn leaf. In such a place the walks and driving roads would be traversed by those who, for the time being, at least, are partially relieved of their cares, and find a sense of refreshment in the pure air, the broad expanse of sky, the stretch of greensward, perchance a placid pond, the noble trees, the beautiful flowers, the flight and song of free birds, the nimble movements of squirrels, and

other gratifying objects.

What more may not be said of the advantages which such a place may afford for young people, which are as necessary as they are desirable? There may be provided ample grounds for ball playing, which, perhaps, now is mostly indulged in in the middle of some street, with the disadvantage of small space, sometimes mud, often of injury to neighbor's houses or gardens. So, also, here may be provision for a number of games, at the same time, of croquet and of tennis; the boys can find a racing ground, and here, too, they may indulge in kite flying, an art dear to the boy's heart, but nowadays but little practiced on account of the obstruction of trees and the numerous electric poles and wires of telegraph, telephone and other purposes. If such grounds should happily be located by the side of a sufficient stream or lake, boating and swimming will be seasonable amusements. To add to these numerous uses of the village park, may be named those for open air concerts and popular meetings for speeches. All these ends are as much to be desired in large villages as in cities, and, what is more, they are quite as attainable in the former.

Suitable sites for parks are not difficult to find in close proximity to all, or nearly all of our larger villages, and usually such grounds can be purchased at comparatively low rates. If some portions of them are broken, and so less valuable for cultivation or for residence grounds, they are even more desirable for park purposes as affording opportunity for more varied treatment of surface. If a portion is covered with timber of native growth, that is an advantage; a variety of grades is desirable



PLAN OF A SMALL PARK.

rather than otherwise, but a piece of level ground can have every foot of it made available for ornamental or useful purposes. Native growths of trees, shrubs or herbaceous plants can be retained, and the artificial planting be made to combine harmoniously with it. What is desired is to develop the finest specimens possible of native vegetation, and to add to these the best acquisitions and productions of modern horticulture, and to group and otherwise arrange these objects so as to make a pleasing association of lawns, shrubs and trees; their manifold forms of beauty to be made apparent and heightened in effect by the manner of presentation.

The expense of grounds and planting of a park of ten to fifty acres is easily within the reach of every flourishing village community. The engraving herewith shows a small English park of about eight acres extent, formed from grounds which formerly constituted four or five residence places. It is not given here to be copied—that would be impossible—but only as a good example, containing fine features of arrangement and planting, and from which one may form some proper ideas of such a place. The effect of a well kept public park would be to make every householder more careful with his own premises, and so be the means of improving the whole village; with this would come a higher self respect, a nobler civilization.

WINTER ASPECT OF TREES.

Each season of the year has features peculiar to itself, which give character and distinctness to it that may not be mistaken. Winter stands in bold contrast to summer; and while spring and autumn take their appropriate places in the routine of nature's evolution, as harmonizers between these two extremes,

mantle of fleecy snow, all are full of beauty—beauties of startling contrasts, of quiet harmonies, of sunshine and shadow of form and color, and of infinite blendings, subtle, indefinable, yet palpably present, and of which the thoughtful mind is delightfully conscious.

With these facts:

With these facts in view, then, it is to

be expected that during the winter months there are many things to be seen which in the profusion of the summer's growth are hidden from view. If, for instance, we wish to become acquainted with our native trees, what an excellent opportunity is given us at this season to study their forms, their habits of branching and the effect of wind and storm in their growth. Such a study will prepare the mind for a more intelligent observance of their development in spring, their summer bloom and fall fruitage, and thus an individual history of our trees may be gained during one year's careful investigation.



White Oak-Quercus alba, L.

yet spring and fall are also sufficiently dissimilar from each other to be easily recognizable independent of any printed calendar.

While these broad facts are apparent to the most casual observer, they are much more so to the student who takes special note of nature's unfolding, and to such an one this ever varying aspect from winter to the flush of spring, thence to the full bloom of summer, and on through the maturity of autumn, to be closed for a time with the hush of winter, when the earth's teeming myriads rest under a

THE OAK.

Live thy life,
Young and old,
Like yon oak,
Bright in spring,
Living gold;
Summer—rich
Then; and then
Autumn—changed,
Sober hued,
Gold again.
All his leaves
Fall'n at length,
Look, he stands,
Trunk and bough,
Naked strength!

TENNYSON, 1889.

Behold the oak! Its sturdy structure and massive frame-work bespeak a monarch among trees, not, perhaps, the giant in size, but a veritable type of rugged endurance; see how he flings his brawny arms abroad, knarled, twisted, sinewy, muscular. That such a tree should have commercial value, and be utilized where strength and toughness is needed is not to be wondered at. Hence the oak fur-

nishes the timber par excellence for all structures designed for endurance. The growth of many seaport towns, where ship building is the chief industry, is due originally to the proximity of large tracts of oak forest, the timber of which is better adapted than any other to bear the immense strain which vessels are continually enduring as they traverse the open seas under every condition of weather, freighted with the precious cargoes of the nations.

Nor is the oak lacking in other respects, for when sawed, trimmed and polished, its handsome grain and color give it first rank among fancy woods, so that it forms the choicest furniture of our day, and has been in favor for such purposes from very early ages. The grain of polished oak is an admirable feature in all cabinet work.



Scarlet Oak-Quercus coccinea, Wang.

There are two score or more species and varieties of oak recognized as natives of America; the white oak and its allies are the most in demand for the excellence and durability of their timber, while the swamp oak is extensively used for fence posts.

The winter aspect of the oak is quite distinct as a genus from other trees, as may be seen in the accompanying illustrations; but the different species are not readily discernible in their frame work alone from each other, for, while they maintain their distinctive character, as a whole, they vary considerably in minor details, even in the same species.

THE ELM.

Artists generally do not care to introduce the elm into their pictures; its symmetrical form is

thought to be too precise, and the foliage does not give masses or breadth of color, that some painters love so much. While this may be true in regard to one phase of art, yet it is also true that the elm is particularly beautiful after its kind, and has a charm of outline distinctively its own; how prominently it stands out in the open landscape, no less in summer than in winter, and how readily we recognize it as far off as the eye can reach, as it throws its gently spreading arms upward from the bole to its circumference. Note the graceful bending of the branches till they assume the pendent form, and bearing from their extreme tips the pensile nests of the golden oriole, reminsicences of last year's gaily colored melodists. We have noticed the remnants of no less than three such domiciles on one fine old elm in our neighborhood, possibly the structures of the same pair of birds or their progeny, as these cheery visitors are apt to return year after year to the same garden spot, and often to the same tree.

The wood of the elm is hard, and from its interlacing, fibrous texture, is extremely difficult to split, and is, therefore, useful for making wagon hubs and in ship build-

ing. Mr. Newhall, in his book on the *Trees of Northeastern America*, relates this interesting story: "One day I found four men in a stone quarry, working with iron bars and rollers over a heavy flat slab. They were moving the stone slowly up a narrow plank into their cart. 'John," I said, 'I would not think that board could hold a stone of such weight two minutes. Is it hickory?' 'No, sir,' said John, 'that's an elm plank; it can't break.' It did not break."



Black Oak—Quercus coccinea tinctoria, Gray.

What is called the corky white elm, Ulmus racemosa, Thomas, is common in this part of the country, as it is also in the Province of Ontario and in the region westward to Nebraska. It does not make as tall or large a specimen as the American elm. It may usually be distinguished by the bark of its branches having corky ridges. The wood of this species is even tougher than the last, and finer grained and heavier, and is really the most valuable of all elm wood for purposes requiring toughness and strength. Is there anything in the mode of growth of the elm which is so conspicuous in winter, that causes this remarkable toughness of its wood? Notice how its limbs separate from the main trunk, and then how. in the same manner, these divide into branches, and these again into smaller ones, until they terminate in twigs. A mode of growth termed by the botanist deliquescent. If you

will watch the growth of the little sapling elm from the seed, it may be seen that, instead of the sturdy, upright growth of the oak, it is bending, willowy, soon inclines to one side and then at a point on the stem where it commences to bend over, a bud starts to grow and continues the stem upward until, in its turn, the new growth bends over and another bud breaks and carries the growth on upward, and we find the main stem is a column of superposed branches rather than a continuous growth of the terminal bud of the original seedling stem. Does this mode of growth by successive overlapping of layers of woody fiber conduce to the toughness of the timber? The wood of the oak has greater hardness and density, but less toughness or elasticity. It is the peculiar mode of growth of the elm which favors its numerous branches, and which appear so conspicuously in the winter season as a network of small branches and twigs.

The elm forms a peculiar characteristic of American scenery. It is much employed as a shade tree, and one of the most unusual experiences to a foreigner is to walk through some of the principal streets of our cities under an avenue of elms, high arching, and yet not sufficiently dense to prevent the sunlight filtering through and lighting up the vaulted space.

THE APPLE.

Who of us in the country does not remember the old apple tree in the front door yard, where, as children, we delighted to sit, two or three together, on its outspreading arms? How we stood, at times, on those sturdy limbs and wondered at its roomy



White Elm-Ulmus Americana, L.

center; here, too, when childhood days became a thing of the past, this same old tree-heirloom of the family-became the confidante of plighted love. Anon, maternal cares found solace beneath its perfumed blossoms, and the aged pilgrim a peaceful quiet in its grateful shade. One by one our darlings have gone out from the home roof, yet the grand old tree remains, and around it cluster the precious memories of the home in by-gone days.

But there are other associations which lend a charm to this dear old tree, for it is the favored haunt of our familiar friends, the birds. The robins love these old trees, building their nests in the clefts of the spreading branches; the king-bird, also, often saddles his nest far out on the horizontal boughs, and should there

be a dry or withered branch it at once becomes available for the lichen-covered nest of the pewee; the chipping sparrow finds room for two or three nests, and even the

humming - bird is tempted, by the social aspects of such a tree, to make his tiny dwelling there.

What more beautiful sight than an apple tree in full bloom, its blossoms having the daintiest tints of the rose and its most delicate perfume. With its boughs bend-

ing under a weight of bright red fruit is it less delightful? Its rounded top and depressed branches bear silent testimony in winter to the loads it has carried.



"Woodman, spare that tree,
Touch not a single bough;
In youth it sheltered me,
And I'll protect it now."

HARDY BLOOMING ROSES.

It seems that my article in the December number has struck a popular chord, as I have had letters from various sections, as well as repeated calls from the editor, for statements of methods of culture, names of best varieties, etc.

ends of the canes and branches all the season from June to November. Next in constant and profuse bloom is the rather dwarf growing Madame Alfred de Rougemont, flesh white, cupped, and a beauty. Albane d' Arneville is more nearly classes.

I lay claim to being only a beginner in the study of the rose in general, but my few years of the charming pursuit have been directed to the one focal point of securing a line of really ever-blooming roses, that in the climate of Sterling, Illinois, one hundred miles west of Chicago, where the winter temperature varies from thawing weather to 30° below zero, will be hardy enough to live and thrive entirely out of doors the year round.

The term hybrid perpetual, applied to more or less hardy varieties of roses, is a misleading one, causing many to suppose, as I once did, that roses so named were perpetual bloomers. In this search for truly perpetual bloomers I have tried many varieties that prove to be excellent June roses-little or nothing more. One catalogue, met with in my early experience, had the honesty to say that Madame Plantier was not a true hybrid perpetual, as it bloomed but once a year. But why was this said of that one variety, when Jules Margottin, Madame Alice Dureau, Charles Duval, Magna Charta, and a host of others of the so-called perpetuals, never bloom but once—at least, never have for me; and others that are nameless I shall throw out as fast as the room is wanted for tried and true ever-

Although I am in the business for the supply of the local demand for these tested ever-bloomers, I will give away the whole secret for the benefit of the readers of Vick's Magazine and its proprietors, who have kindly given me space to air this interesting subject.

The leading varieties that have proven to be true perpetuals with me for several successive years are as follows:

First, my old favorite, which is, doubtless, Mad. Chas. Wood, as claimed by L. S. LAMANCE and others, and the Dinsmore, which promises equally well, though not tested so many years. These are very strong growers very large, very double, brilliant crimson roses, blooming in clusters of three to a dozen on the

season from June to November. Next in constant and profuse bloom is the rather dwarf growing Madame Alfred de Rougemont, flesh white, cupped, and a beauty. Albane d' Arneville is more nearly clear white, more globular, but hardly as profuse a bloomer, though a stronger grower. Charles Darwin is a very dark, velvety, black-red rose, buds and bloom equal in form to "Gen. Jack," and most of the teas, and blooms repeatedly through the season. Mrs. John Laing produces magnificent soft rose-colored bloom, singly, on erect stems, all summer; but owing to its habit, above stated, is not a profuse bloomer. It is a great keeper, the bloom remaining perfect a long time. Baroness Rothschild is an ideal rose in form and color, light rose color, globular, and, so far as tested, I believe it to be, when well grown and established, a reliable ever-bloomer. Gen. Washington is a good crimson rose, and blooms repeatedly through the season. Another red rose of great beauty, of which I never had the name, has been a fine June bloomer, with scattering flowers during the summer, when it gave repeated series of bloom. Another, for which I know no name, of vigorous growth, never bloomed at all till some five years old and then but sparingly; but last year it bloomed all summer, giving us charming buds and roses, borne in racemes on long, graceful stems, color bright rose-pink. ever-blooming habit is established by another year's experience, I shall call it a gem. La France is not as hardy as the foregoing, but can be grown with like treatment, and it is, perhaps, the queen of all the roses, shell pink, of perfect form in bud or flower, very fragrant, and a profuse and constant bloomer.

I will not attempt to speak of the half-hardy or tender roses this time, or this article will be too long. I have Glory of the Mosses, pink, and a white moss with very thorny (soft thorns) wood, and rough, sticky leaves, blooming in clusters and very mossy, of which I never had the name. They are beauties; but not ever-bloomers, and I know of no mosses that are. If anybody else does I should be glad to hear from them.

As to methods of culture, there is,

probably. little that is new in what I can offer. My beds, except a nursery for cuttings, are cut into the sod of the lawn. Sometimes I have turned under manure in making them-sometimes only the sod. I dig around the borders when necessary to keep the grass from encroaching, and keep the ground clean as for any other flowers, by hoeing and weeding. In the spring the bushes are well trimmed, and all weak wood cut out. In some cases the wood will be mostly killed down nearly to the ground. when it should all be cut away. The bloom all comes on new growth, and the best crops are often on entirely new canes thrown up from the roots below ground. Through the spring and early summer I watch for bugs and worms, and on the first appearance of the leaf-eating slug I dose him with slugshot (hellebore is said to answer the same purpose), when the dew is on, and a few applications finishes his career for the season

The few rosebugs that have ever bothered me have met an untimely end by getting between my fingers. I think it is best to cut back pretty well in the fallsay October-and not let the plants bloom much quite late in the season, thus saving the strength to sustain root and plant through the winter. The only covering I have used so far is the autumn leaves falling from fruit, shade and ornamental trees and shrubs on the premises. These are raked up in November and piled among and around the bushes. A little brush will hold them from blowing away if winds are strong before the leaves get settled. In the spring I take off the leaves when growing time begins, leaving a few only for mulch. I keep track of my varieties by making a map of each bed, with an arrow pointing north, and locate and name each plant as towns are shown on a map. Stakes and labels are unreliable.

THEO. H. MACK, Sterling, Ill.

COLEUS.

Some may not admire these foliage colors and markings, and each leaf seems plants, but I admit I do not belong to that class. They have always been my favorites, and perhaps they are common, and you would much rather have some finer and more expensive plant. You may, but I will not do without a goodly shelf full of them in winter, and a whole hed ot them in summer. The top shelf of my bay window is devoted to them and an immense heliotrope. I rooted them in August, because they root so easily then, they revel so in heat. I pinched the cutting back when I first put it in sand, and I continued to pinch until I had a stocky little bush of it, which it attained by the time it was ready to go into winter quarters.

I allow them to grow to the window, that is, I never turn them unless I am expecting company, and then what a show they do make. Everybody says, "How lovely your coleus are. I never have any luck with them." As if there was any such thing as luck in floriculture. I know full well luck has nothing to do with their beauty and luxuriant growth. They are very sensitive to cold, and a chill will spoil their beauty, for the leaves different from the others. I know of no plant possessing such varied coloring. We often read, "No use to try to grow them outside a greenhouse or warm conservatory in winter," but I know they can be grown well in a sitting-room heated by a wood stove.

I have grown them eleven years, so I know whereof I speak, and feel as though I had some little experience with them. Old Verschaffelti is one of my favorites. Spotted Gem another, Shah, Mrs. Geddes, Golden Bedder and several whose names I am unacquainted with, but equally pretty. I saw some new ones. last fall, in visiting one of the city greenhouses. They were just grand, but I did not find out the names, as the proprietor was absent. I enjoyed looking at them, but it was so hot in that particular greenhouse that I was anxious to get out and try looking through a cooler one. This time it was the carnation house. Were they not sweet?

Well, back to the coleus again. When potting them I give them quite a good deal of sand; indeed, I grew one pot of them, one year, in sand entirely, in an will drop. They have such diversity of old tin fruit can painted neatly. They

must not have a rich soil, I do not think the coloring is so fine. Have the drainage perfect; indeed, this should be for all plants. Charcoal is nice for the bottom of the pot. In the spring I root them by the dozen, have enough for myself and all my friends (those who don't have luck with them, you know). I always have a bed of mixed varieties, and a fancy bed is nice. Make a star of Golden Bedder, and fill in with Verschaffelti. Be sure to have the points to the star well defined. The soil into which they are planted is plentifully strewn with sand. I am never in a hurry to bed out coleus. June is plenty early enough, as they may get a chill, and then my beautiful bed would be robbed of its beauty for that season. No, there is nothing takes the place of coleus for me. M. R. W.

CAROLINA WILD FLOWERS.

NUMBER III.

There is hardly a day in the season from April until November, when to one who knows the woodlands well some one of the Silenes is not visible, either the brillant, flaming shoals of scarlet and crimson Catchflies, or cool snow white banks of Starry Campion, with many shades of

pink and red between.

Early in April, as a family herald, comes S. Pennsylvanica, the wild pink, brightening with gay, clustered, short-stalked pink flowers the open sandy hillsides near every little stream. The flame of S. Virginica is brighter. The same bright, deep, clear scarlet which one sees in the cardinal flower in autumn, sans the rich velvety look which gives the prelate such distinction. But this fire pink is a beautiful blossom, more graceful than many of its relatives, as its stems are longer, and its loosely cymose flowers, bending and waving with the tall billowy meadow grasses as the wind sweeps across, and gleaming out like fiery stars, make a sight to be remembered. S. regia and S. rotundifolia, both scarlet, with large and showy flowers, are rarer than S. Virginica, and all are noteworthy and easy of culture, if transplanted to the garden. They will not grow in deep shade, but love a fair amount of sunshine and a rich, sandy soil. It is the viscid exudation on the stems and calyx which gives to these flowers the name of catchfly.

I have been searching every bleak, cold mountain top and side for S. acaulis, the moss campion, but cannot find it. I suppose it is too warm for it here. Now and then it is to be found in some sweet old time garden, a cunning little cushion of evergreen, tufted like moss, with thick linear leaves, two or more inches long, and dainty white flowers.

Flecking the mountain sides like fallen patches of blue sky come in early spring a troop of irises. The dwarf ones love the high, dry mountain sides, you will find that the taller, more stately and showy ones love low wet places and swamps. But it is la petite which carries the perfume always, and nothing could be daintier or sweeter than pretty little Iris verna. with its linear grass-like leaves growing thickly over and about shelving rocks. Its violet blue divisions of perianth vary in color, often they will be almost white. with pale yellow markings at the throat, sometimes the falls will be purple with orange-yellow base, and violet standards, but usually its uniform color is violet-blue, with falls a little deeper than standards and throat a rich orange. Its perfume is delicate and captivating, and I would love to be a herd-boy on these mountains in early spring, to sleep away my days in some spot of sunshine, upon beds of sweet fern and blue iris. That would be my idea of dolce far niente.

I. verna is my favorite, but I. cristata is also dwarf and beautiful, with crested falls and corolla larger than I. verna, (I. Caroliniana--Pitcher and Manda's novelty.) I versicolor and I. Virginica are too well known to need a recapitulation of their beauties here, but I. cuprea, our yellow iris, does not seem to be well known. It blooms in May and has a stout stem with sword shaped leaves, and its flowers vary in color from bright yellow to reddish brown. It is beardless, has a cylindrical perianth-tube, and the divisions of the style are petal like. To grow in the center of a round mass of native dwarf iris is wonderfully pretty.

Our earliest and largest violet also loves the open woods and mountain sides, and

This is Viola pedata, so called, perhaps, from its pretty three to five divided leaves which fancy may liken to a bird's foot. Its corolla is widely open, like a pansy, with smooth beardless petals, the stamens and stigma forming a conspicuous bright orange dot in the center of the deep, lilac-purp hear the childre and we truly ha more beautiful. and a half inche vary in color from the center of the flower and leaf.

deep, lilac-purple flower. I sometimes hear the children call this "wild pansy," and we truly have not any in our gardens more beautiful. The flowers measure one and a half inches across sometimes, and vary in color from white to deep purple. This species is worth growing both for flower and leaf.

L. GREENLEE.

THE VERBENA IN THE GARDEN AND WINDOW.

The verbena is among the "must haves" for the garden. It seems like an old friend, and a garden without verbena is but half a garden. It will bloom without stint from June until after quite severe frosts, provided the soil is light and if possible slightly sandy, is good rather than poor and there is a daily cutting of the blossoms. Allow no seeds to form, if possible allow no blossoms to fade, and the plant will send out runners in all directions, each freighted with buds and blossoms.

They seem to rush and hurry along out of your reach, apparently, where they can have an opportunity to form seed. Very many people will say the same ground must not be used twice for verbenas, in other words, the verbena beds must be in a new place each season. This has not been my experience. I have had the same spot for my verbenas for years in succession and my verbenas were as fine the fourth year as the first.

Each season I allowed a few of the finest plants to ripen a few seed, that sowed themselves, and some of the seed-lings thus obtained were far superior to their parents or grandparents.

Verbenas are very cheap, but for those who prefer to raise their own plants the following method will be found effectual:

First and most important, make sure your seeds are new. Sowing old verbena seeds is a thankless task for they will not germinate. Sow verbena seeds as early as March. If you have no hot bed, manufacture a miniature one as follows: Take a box or pan and in the bottom put a layer of quite fresh horse manure (for bottom heat). Over that a layer of sand or gravel, then fill your dish with finely pulverized, somewhat sandy, soil.

Make smooth, and moisten very thoroughly, but do not drench the soil. Make tiny furrows about an inch apart and

plant the seeds quite thickly. Cover lightly with damp soil and press down firmly with a bit of board or the hand.

Now wring from warm water a piece of flannel to cover the seed, by keeping the flannel damp all the time the soil will be kept moist, without an occasional soaking, which is quite apt to wash the seed out of the ground. Set seed box or pan in some warm place, keep the flannel cover wet and after a week watch for seedlings. As soon as the tiny plants appear the flannel must be removed and sunshine and air given the new seedlings. If convenient keep a glass over the plants for a week or ten days, but keep it slightly raised most of the time or the excessive heat and moisture will cause your young plants to damp off. While you must guard against too much moisture, it is just as essential to see that the plants are not allowed to get too dry.

It requires "lots" of care and patience to successfully raise enough seedlings for your own and your friends' gardens.

If your plants come up well, they will, by the time they are an inch high, be getting too thick to grow freely, and a part of them should be transplanted to other pots or boxes. As soon as the weather will permit, they should be gradually hardened, preparatory to the out-door life to come, by being placed in a cooler room and from there out of doors during the day.

To cause the seed to germinate, heat is essential, but too much heat weakens the plants.

Verbenas can be bedded out quite early in the season without detriment, provided they have been through the hardening process referred to. I got mine into the ground so early one year that they were completely hidden from view by a belated snow storm. I did not see that they received the least injury thereby, though I

felt a little anxious when I looked out in the morning and saw the "beautiful snow" had dropped such a fleecy white mantle on my flower garden. In bedding out "a situation where the morning sun will not strike them before the dew is off in the morning is best, as this is one cause of the mildew or rust which so frequently saps the vitality of the leaves," so says a good authority on floriculture. The same authority also states "as a house plant the verbena is not a success."

My own experience contradicts both these statements. My many verbena beds have one and all had the full benefit of the morning sun, and I have never vet been troubled with rust or mildew. I have always had good success with the verbena as a house plant, and will give my method of treating later on.

If your seedlings make a growth of five or six inches before it is warm enough to bed out, they should have their tops pinched off, which will cause them to branch freely. When transplanted the stalks should be carefully bent and fastened to the ground. Hairpins make cheap and effective fastenings, or small round sticks, five or six inches long, can be split nearly the entire length and a tiny bit of wood inserted in the cleft to hold the sides apart, can be used to peg down verbenas or other trailing plants. Or often a little flat stem or a handful of earth will serve to hold a stalk in place until it is firmly rooted, which under favorable circumstances will be in about a week.

If it should happen that a plant branches too freely and forms too thick a mat, cut out a part of the plant, and the remainder will grow and blossom better.

If you would have verbenas in the window in winter, it is necessary that you should begin in August. Sink some pots

in your verbena bed, fill them with soil and in each pin a joint of verbena; keep well watered, and after a few weeks. sever from the parent plant. If the part left in the pot is larger than you want totake into the house, cut it back to suit vourself.

Gradually accustom these plants to the house. It is quite as bad for a plant to bring it directly from the open air, in the cool weather of autumn, to the overheated air in our living rooms, as it would be in spring to rush the plants directly from the warmth of the house to the damp, chill atmosphere of the garden.

The life of many a beautiful plant has been sacrified by thoughtlessly submitting it to such severe extremes. As soon as your verbenas are thoroughly accustomed to the house give them the sunniest window, and let them have a place just as near the glass as possible. Don't allow them to get dry and don't keep them deluged with water, and if they appreciate your care as they ought to, they will bein blossom by the holidays. If they get "lousy," tobacco smoke or a bath of tobacco soap suds will "fix" them all right. If the plants thrive and branch freely, you can in February or March take off cuttings enough to stock your own garden and make glad the hearts of many friends. If you look carefully along the stalks and at the joints of the plants you will see little protruberances, which are sometimes called "eyes." In taking your cuttings. he sure and get pieces with two or more "eyes," for they are nothing more or less than the points of roots that only want. congenial surroundings to start them into growth. Cuttings having "eyes" will, if placed in bottles of water, strike roots in three days, sometimes sooner

DOROTHY LINCOLN.



FOREIGN NOTES.

POT CULTURE OF GRASSES.

A correspondent of The Garden advises growing some kinds of grasses in pots to be used as a means of relieving the masses of color of the bloom of greenhouse plants during the summer season. For this purpose the seeds can be sowed from January to March, according to latitude, the latter month is early enough in the Northern States. The plan prefered is to sow the seeds not too thickly in the pots where the plants are to be grown. Pots of five or six inches in diameter are handier than larger ones. One piece of broken crock over the hole in the bottom of the pot will allow drainage sufficiently. Some loam with a small addition of old manure and sand will make a suitable soil.

Plenty of air should be given to the growing plants to make them as sturdy possible. A little support, however, will be needed, and this can be provided by inserting four light sticks in each pot, and fastening a stout thread around the top of each. Plenty of water will be needed as the pots become filled with roots. Some of the best grasses for this treatment are Agrostis pulchella, A. nebulosa, Briza maxima and B. minor, Hordeum jubatum, Lagurus ovatus and Bromus brizæformis. These grasses are all valuable for cutting to mix with cut flowers. but for this purpose the seeds can be sowed in the open border. To the varieties named above may be added Chrycurus cynosuroides, Pennisetum longistylum and Trycholæna rosea.

IRRITATING PLANTS.

A writer in *The Garden* (London), mentions bad effects, such as skin irritation, by handling plants of the fern Davallia Mooreiana. His experience was not confined to a single instance. He does not think the spores to be the cause of the affection, as he believes the frouds were not old enough for that, but as to this admits he may be mistaken. Another correspondent confirms this statement by his own experience, and also says, he has had "the same inconveni-

ence when working among specimens of Alsophila australis, and thought that it was caused through some of the small scales getting in his eyes." The irritation had been considerably increased by passing the hand over the face.

The same observer says that Primula obconica is not the only species of primula which required care in handling. "P. Sinensis possesses similar properties, though perhaps not quite so powerful." He thinks it may be useful to know that care is necessary when working among such plants.

He further remarks, as follows: Many of our most beautiful plants are very poisonous. I have heard of ladies who object to poinsettias in a room because they are poisonous, but I do nor think there can be any harm in them any more than there is in many other plants to which no objection would be made. I believe there are many things which should be handled carefully, especially when using the knife among them. I was once pruning a stephanotis, when a drop of sap fell on my eye; this caused the most intense pain, and the inflammation spread all over the cheek. The poisonous properties of the arum family are well known. I have never experienced the sensation, but I have known others to suffer very much through sniffing the pollen from the inflorescence of Calla Æthiopica. If a little of the pollen is drawn into the nostrils the irritation is intense.

SHIRLEY HIBBERD.

English horticulture sustained a severe loss in the death, last November, of this eminent florist and writer on gardening subjects.

Mr. Hibberd was well known as the author of a number of practical works on gardening and for a number of years as the editor of the *Floral World*, and later of the *Gardeners' Magazine*. One of the best known of his books is "Familiar Garden Flowers," one of Cassell's series. The *Garden* mentions him as "a man whose ability as a writer, eloquence as a speaker, untiring energy, and enthusiastic

love for flowers have won him a name that will long live in the memory of horticulturists." As editor of the journals above mentioned he did a vast amount of good work which has been greatly effective in the advancement of horticulture.

SOIL FOR FLOWERING PLANTS.

A series of experiments made last season in England to ascertain comparative values of some different soils for annual flowering plants gave some positive results in accordance with the practices of

good gardeners.

Five parallel beds were prepared, each 9 feet by 3 feet. The surface soil consisted of a fairly good sandy loam, the subsoil was red, rather gravelly sand. The first, second, fourth and fifth beds were all completely cleared of soil to a depth of thirty inches. The third bed was cleared of all loam to the depth of eighteen inches, and then filled up with pure sand derived from the lowest parts of the other beds.

The first bed was filled with a slightly earthy peat, and covered with two inches of loam. The second bed, called the "lime bed," had a bottom layer of sod nine inches deep and was then filled up with sandy loam with which two barrowloads of lime were thoroughly mixed. The fourth, or "leaf-mold bed," had a bottom layer of nine inches of sod, followed by alternate spadefuls of loam and leafmold. The fifth, or "manure bed," was the same as the fourth except stable manure was used instead of leaf mold.

Seeds of annual flowers were sown in straight lines, using seeds of the same kind and from the same packet, across all the beds. Eighteen different kinds of flowers were sown, and accurate records kept of the number of days to the appearance of the seed leaves, number of days to the "rough" or foliage leaf, number of days to the first bloom, number of flowers per plant, number of side branches, height of plants, and average length and breadth of the leaves. The results uniformly indicated that the value of the materials in these trials were in the following order: leaf-mold, manure, lime, sand and peat-

the leaf-mold bed producing the finest plants and the greatest amount of bloom. The height, length and spread of roots, length of leaves, number of branches and of flowers per plant, all follow the above order. The breadth of the leaves was slightly more in the case of the plants on the "manure bed."

This result we believe accords strictly with good practice in gardening, and probably another bed in which leaf-mold and old manure should be used in equal parts would give the best results of all. In making up our flower beds we may be satisfied if we can mix in plenty of leafmold and well rotted manure.

The experiments noticed were reported by G. F. Scott-Elliott, in the Gardeners' Chronicle in December.

THE ENGLISH SPARROW.

An English writer on "Ornithology in relation to Agriculture and Horticulture," some of whose productions have appeared in this MAGAZINE, has lately considered the standing of the common house-sparrow in that country, and with the conclusion, similar to that reached in this country, that fruit-growers and gardeners must make war on the bird for their own protection. Australia and New Zealand, as well as this country and Great Britain, are infested with this pest, and he would everywhere be quickly exterminated if only the means could be found to do it. Poisoned wheat fed to the birds in winter has been recommended in this country, but there has been no concerted effort in its use. An Australian poet thus sings its efficacy:

What means this sadly plaintive wail, Ye men of spades and harrows? Why are your faces wan and pale? It is the everlasting sparrows. We may demolish other pests That devastate the farm and garden; But spoiled by these voracious guests, Our prospects are not worth a farden. No more your wasted fruits bewail, Your crops destroyed by Peas and Marrows; A cure there is that cannot fail To rid you of these hateful sparrows. The remedy is at your feet, Slay them and wheel them out in barrows: Poisoned by Faulding's Phœnix Wheat, The one great antidote to sparrows.



PLEASANT GOSSIP.

FLOWER NOTES.

As spring approaches, we are beginning to plan for the campaign in the flower garden. That is, if we are true flower lovers. We are always in a hurry to get things growing, and then in another hurry to get them to bloom. Now we must possess our souls with patience, if we would grow perennials or biennials from seed: and we know from experience that one trial of growing them, and every year will find us putting in a few seeds of some hardy plant new to us. A bed of campanulas (Canterbury Bells) were my pride the past summer. I had never had more than a clump of them before, and such a show they made with their lovely bells swaying in the wind, all shades of blue, lavender, pure white, and blotched or freckled in darker shades of coloring. There were double and single ones, but I much prefer the latter. Why is it we cannot bear a double of some flowers, while others it is their greatest beauty? These bell flowers are not nearly so light and graceful appearing when double. And now, Mr. Editor, just here I must trouble you with a question. *Are they perennials? When I have had them before, they generally "went up" after the first blooming, so I supposed they were biennials. But somewhere I have seen them catalogued as perennials. My plants looked green and fine when I gave the beds their winter covering, and I hope to see them again in spring, if not, I have another patch of them that will do duty another year.

To keep in stock of biennials one must plant seed every year. Then you are sure to have blooming plants always. What I mean by this is, those plants that bloom the second year, and then give up or die. Perennials, of course, live on from year to year, if given any care at all. But they respond liberally to good treatment. I like to plant seeds of all perennials and biennials in the spring, in May is a good time, when

* Campanula medium, Canterbury Bell, is a biennial.—Ep.

the ground can be worked well. My experience is that sown then they become good, strong, thrifty plants, able to stand their first winter well. I know they are hardy, but they need some size and strength to stand these Iowa winters. I have tried a score of times, with every care I could, to succeed with them planted in the fall or late summer, but never did, and why not plant in spring, if you order your seeds at the same time you do your annuals or your vegetables. Plants of this class do not keep in bloom so long as many others, and the herbaceous border may be given any out of the way place where the sunshine rests and air freely penetrates. I have a long border one hundred feet in length and four feet wide, running along the side of a low fence. I take more comfort out of that border than out of a half dozen other beds of more costly plants. Everything you can imagine grows herein. and I keep a note book, and have things jotted carefully down for fear I should forget and accidentally root up something new, tucked in the previous year. There are hollyhocks in every color at the back, aquilegias, digitalis, monkshood, delphinium, perennial phlox, sweet williams, rockets and a great variety of iris. I could not well get along without this perennial bed, and do not intend to try, and shall add to it from time to time new things I read of in the MAGAZINE.

M. R. W.

THE BUFFALO BERRY.

A specimen of the fruit of the Buffalo Berry was received in December from L. E. R. LAMBRIGGER, of Big Horn City, Wyoming, and from it has been prepared the engraving here presented, which shows it of natural size.

The plant on which this fruit grows is a thorny shrub, or small tree, sometimes becoming twelve to eighteen feet in height. Its botanical name is Shepherdia argentea, the Silvery Shepherdia. It is diœcious, that is the staminate and the pistillate flowers are borne on separate plants, and it is necessary for the fruitproducing plants to have near them staminate subjects, the same as is the case with many varieties of strawberries. For the reason above mentioned it is doubtful if the cultivation of this tree for fruit purposes can be greatly extended,

SHEPHERDIA ARGENTEA.

however desirable it might be. The fruit, when ripe, resembles in appearance the red currant, and is quite like it in taste, being a sharp, agreeable acid. Where it grows in a state of nature, at the west, it affords a welcome supply of healthful fruit at a season when, at the east, we are supplied with the refreshing cranberry. Mr. L., December 15th, says:

The fruit I send you of Buffalo Berry is somewhat shrivelled from the continued

freezing, but every frost only serves to increase its flavor; day before yesterday, three of us went out and gathered a ten quart pail full of them, to be made into sauce and served with turkey for a Christmas dinner. It is related to Eleagnus longipres, but, unlike that plant, is en-

tirely hardy. E. longipes is not hardy north of Washington, and no Japanese fruit tree or shrub will survive Wyoming climate.

A SATISFACTORY PLANT.

I have a very pretty shrub-like plant called Clerodendron fragrans. which is one of my particular favorites. I find it of easy cultivation, and when it blooms is certainly worthy of a place in a plant lover's collection. I do not know to what height it might grow, for I do not allow it to go up, up, as it undoubtedly would; I pinch it out relentlessly, and so keep it within bounds. It has bloomed for me both winter and summer. Is budded now, February 14th, for the first timethis winter, but blooming late in the fall is probably the cause of its being so late now. The flower cluster consists of a number of small florets, like miniature roses, of a wax-like texture, coming out white, and when fully blown a delicate pink tint; the flowers have an exquisite fragrance, and are very lovely, lasting for many days. Thus far I have found it but little troubled with insects; it requires plenty of moisture at the roots and an occasional washing of the foliage. The foliage, I will admit, is not attractive, but yet I have seen coarser looking plants. The leaves emit a weed-like odor, but the blossoms fully compensate for any lack

in any other part of the plant. The past summer this shrub, in a small tub, occupied a position at the south side of the veranda, and when in bloom the whole yard seemed filled with the delicate perfume. I have seen dainty flowers made in wax by a deft handed girl, and if these delicate, rosette-like flowers had been molded by the same hand, one could scarcely have told any difference, so near alike were they. I have always kept

mine growing in winter, because it blooms, but I think it will keep equally well in a light cellar, if desired to be kept in a dormant state. I find it is like some other plants, impatient of being potbound; if it should get so when inconvenient to repot, care should be taken to give plenty of water and a good top-dressing of rich soil, digging the top soil away to be filled in with new. Take it altogether, it is a very satisfactory plant to cultivate, fragrant and sweet. How is it we go more into ecstasies over an odorous plant?

M. R. W.

FLOWERS IN THE GRASS.

Some one has said that the appearance of the front yards of a town always give character to the place, as they certainly do to the people who own them. And the dainty grass-plat, be it ever so small, or of the happy proportions so much to be desired, tells its own tale of the thrift, refinement and exquisite taste of its possessor. The old-time flower beds that dotted the front yards of our grandmothers have given way, long ago, by common consent, as it were, to the smoothly shaven lawn of to-day, where the mat of green grass is considered its best ornament. The flowers are none the less precious, however, and they have been made to gladden not only the cook's eyes, but those of our own, as well, when we take our turn in the kitchen or the kitchen garden, where grow and thrive the manifold blossoms that we

But who knows the value or happy surprise, each season, when the few tiny crocus bulbs we once planted here and there, in the mat of sod, come up and Here, first the green little orange ones, with their funny black stripes outside the yellow cup, thrust up timid little spikes of bloom and open out some sunny mid-day to tell us of their well being, Then great yellow ones, like the great aunts and uncles of the smaller tribe, and dainty purple and white. I have grown them successfully thus for years, though, as some others have experienced, I find that they do not increase at the same rate they would in a more mellow soil in the garden beds, where grow their foliage.

The snowdrops, which open a little earlier, do well planted in small clusters

upon the lawn, while I believe that our lovely little blue and white scillas will do equally well, for I tried them successfully last year. I do not mean by this that any bed need be prepared, or even the smallest portion of sod displaced, only make a very small, mellow place under a cake of sod, plant your tiny bulbs singly, or in small clusters, lay the sod back in place again, and next season you will be agreeably surprised at the result. Daffodils do marvelously well planted in this way, both yellow and white of the kind known as the Trumpet Narcissus. I had rather have them than anything else, and their bright, cheery bloom lasts so long and gladdens every one who beholds them. Narcissus poeticus, also, is equally as good; but these remarks in regard to narcissus have reference to a rich, deep soil that is abundantly moist in spring. On a dry, gravelly soil the result will not be good, though perhaps the jonquils will succeed better in such position. I do not know if it would injure the foliage to be cut very often with the lawn mower-our own on a lawn of great extent is always cut with a scythe once or twice during the early summer, without injury to the bulbs.

White sweet-scented violets do well for quite a number of years planted where there are apt to be bad places in the sod, and will always thrive if the the grass does not crowd them too closely. Every one will know their value too well not to appreciate this modest little flower, the very sweetest of all spring blossoms. Spending some weeks at one time in an Iowa city and its suburbs, I was much pleased at the beautifully kept yards and lawns of that place. I noted here in a number of the yards, clumps of white, fragrant grass pinks standing out distinctly from the surrounding green of the nicely kept sod. The foliage being of that peculiarly blue-green, and rising up in round, pretty clumps or little mounds, made them especially pretty, and the fact of their being in full bloom at the time added to their pleasing effect.

Blue grape hyacinths flourish best in sod places, and will always furnish bloom, their slender little spikes of blue and white bells appearing as faithfully as spring comes, and the delicate foliage is quite as pretty as the grass around them.

H. KERN.

CARNATION NELLIE LEWIS.

It is a pleasure to issue, as we do this month, a faithful copy of a painting of the beautiful new variety of Carnation Nellie Lewis. This plant has so many good qualities that it cannot fail to come quickly to the front as in every way desirable, both for the amateur and the commercial florist. It is a sport from the variety J. J. Harrison, is a strong grower, blooming freely and producing its flowers on long stems. The flowers are large and full and of a most beautiful shade of brilliant pink—an exquisite shade, is the verdict of all who see it, and one which has long been wanted in this class of plants. It is very fragrant, as any good carnation should be, but is superior in this respect. It is unnecessary to say more, for, like any beauty, its face is its fortune.

LETTUCE MOLD.

One of the annoyances of the gardener who plows for early lettuce, by sowing in hot-beds and cold-frames, before the weather permits of the covering being removed any length of time, is the parasite fungus, Peronospora gangliformis, or leaf mold. It makes its appearance on the upper side of the leaves in the form of frostlike patches or inconspicuous moldy spots. At first they are light colored, and one not used to the disease would not be likely to quickly distinguish it from the healthy leaves. But later the upper surface of the leaf becomes discolored, and finally the whole leaf shrivels up and dies.

These frost-like patches are made up of great numbers of individual plants which draw their sustenance from the juices of the lettuce leaves, within the cells of which it insinuates itself. These are the roots of the plant and the frost-like external portion springs from these and on their branches are produced what is called the "summer spores," small spherical bodies which act as seeds to reproduce the plant.

These spores do not live over winter, but another kind, called "resting spores," or *oospores*, are produced in the cell texture of the leaf, which, it is said, survive the winter, and start new plants in the spring.

This form of mold is said to be found upon a number of other plants besides lettuce. It has been found upon the wild plants, Nabulus albus, wild lettuce, or Lactucas and other plants.

As it is known that molds delight in a warm, damp, close atmosphere, a lettuce bed attacked by peronospora should be ventilated as much as possible. Prof. Maynard of the Massachusetts Agricultural Experiment station, who has experimented with a view to finding an antidote for this fungus, gives the following directions:

Grow at a low temperature—31° to 40° at night, 50° to 70° during the day—giving abundance of plant food, and quite copious watering, applying the latter in the morning and on bright days only. One thing to be certainly avoided is extreme changes of temperature.

Ventilation may be effected by keeping the frames open when the weather will permit, thus keeping the air as dry as possible. Gather all the affected leaves and burn them. In constructing new beds discard all material from the vicinity of the old one.

L. F. Abbott, Lewiston, Maine.

FLOWERS AND FRUIT IN MISSOURI

Our bay window is full of flowering plants, most of which are in bloom, and none of them is more attractive than the Alpine violet and cyclamen, bought of you a year ago. It has now eleven flowers open, of a magenta color, that strikes the eye at a glance. We intend getting others of different colors in the spring.

Did I tell you that my little Perle des Jardins gave me a white flower first, but the latter ones were golden yellow? I mention this so that others may have patience. Here our latest roses in the fall are the brightest colored.

My crocus and hyacinths are peeking their noses out, and I must cover them more or they may be hurt by freezing yet. Ground freezes at night, but bees fly around each day. Drought has prevailed for months, but this evening, January 20th, it commenced raining, and we may get plenty of it now.

I need not tell you that our State showed up well in the apple line, last fall. \$10,000,000 worth of them sold out of the State. This has induced many to plant large orchards, so that in course of time Missouri will be able to supply the great northwest where they cannot grow them.

S. MILLER.

WESTERN NEW YORK HORTI-CULTURAL SOCIETY.

Thirty-Sixth Annual Meeting.

The horticulturists of Western New York met in convention Wednesday, January 27th, in the Common Council Chamber, Rochester, N. Y. Vice President S. D. Willard, of Geneva, N. Y., presiding. The attendance was large, and, considering the discouragements of the past season, the meeting was very enthusiastic.

After dispatching some routine business, the Vice President stated a plan he had in mind for the encouragement of horticulture in the State, and one which might result in an improvement of the financial condition of the society. He had, upon his own responsibility, had a conference with the Executive Committee of the New York State Agricultural Society, explaining his plan, which was that the State Society should offer better premiums for horticultural exhibits, and that the members of the Western New York Horticultural Society should make exhibits at the State Fair as a society, and the premiums secured for such exhibits should go into the funds of this Society.

Messrs. W. P. Rupert, of Seneca, S. J. Wells, Fayetteville, James A. Root, Skaneatles, G. B. Arnold, Barre Centre, and W. H. Pillow, Canandaigua, all spoke in favor of the plan.

Mr. W. C. Barry regarded the question as one of the greatest importance, and urged a combination of the members of the Society. The residents of Western New York hardly know what magnificent fruit is raised in this section, and a very little effort would collect such an exhibit of fruit as could not be excelled in the United States or even in Europe.

Professor L. H. Bailey, of Cornell University, thought the plan, as stated by Mr. Willard, solved the problem for creating a greater interest in horticulture and improving the financial condition of the Western New York Horticultural Society. He referred to the fine fruit exhibits made at the Michigan Agricultural Society's annual fair by the State Horticultural Society, and the benefits of the plan as an educational feature for the whole State.

The discussion resulted in the appointment of the following committee to formulate and present to this meeting a plan for carrying out Mr. Willard's idea:

Messrs. L. H. Bailey, W. H. Pillow, T. S. Hubbard, S. D. Willard and W. C. Barry.

AFTERNOON SESSION.

Mr. S. D. Willard, Vice President, presented the annual address, which, after a brief review of the unfavorable weather of last year, so destructive to the fruit crops, consisted almost entirely of appropriate and feeling tributes to the memory of those of the members who had died the past year, and especially in reference to Patrick Barry, who had for about thirty years been the President and leader of the Western New York Horticultural Society.

In the absence of any report from the committee on native fruits, Mr. W. C. Barry read a paper on grapes, emphasizing the fact that his report was concerning fruit tested only in the neighborhood of Rochester.

GRAPES-OLD AND NEW.

During the past ten or fifteen years many new varieties of grapes have been introduced, and are now on trial in various sections of the country, and reports as to their merits and demerits are beginning to be published. Planters will examine these statements with considerable interest, in order to see how the experience of others compares with their own. There are many, too, who were unwilling to assume any risk themselves, and have permitted others to do the experimenting, and these are now prepared to profit by the results.

It will be rather discouraging to planters to hear such an adverse report as experimenters are forced to make concerning many of the varieties introduced—the disappointment is the keener for the reason that expectations were raised so high. That considerable progress has been made it is a pleasure to admit, but, on the other hand, it must be acknowledged that serious mistakes have been committed in placing upon the market so many kinds which are ill adapted to satisfy the general want.

This country is so large and climate so diversified that it is next to an impossibility to obtain varieties which will succeed generally. There is, perhaps, not another region in the United States where so large a number of kinds succeed so admirably as in the grape region of Western New York, and yet of the recently introduced kinds how few there are that are likely to be retained for cultivation. Notwithstanding the recent additions, the old and popular Concord, which originated with Mr. Bull, of Massachusetts, in 1853, still heads the list, and is unequalled for general purposes. The Hartford Prolific, too, has not been displaced by any of the new claimants for popular favor.

Among recent acquisitions, the Worden is one of the most important; it is the nearest approach to the Concord, and is, doubtless, destined in some localities to supersede that famous variety. It ripens a week earlier, is of better quality, as vigorous a grower and as good a bearer, and takes well upon the market. Although it has, like the Concord, a thin skin, which necessitates extra care in handling and packing, especially for distant transportation, it is in reallity an important gain for the grape grower.

Barry is one of the Rogers' Hybrids, which is especially valuable as a market grape, on account of its remarkable size aed handsome appearance combined with good quality. In it we have a native grape, which in size of cluster and in general appearance resembles and equals a foreign or hothouse grape; the clusters on a well grown vine are immense, uniform in size and equally distributed over the plant. In fact, the vine is inclined to overbear, and frequently does so, to its great detriment, thus causing disappointment to the grower. However, if care be taken not to allow the plants to yield too heavily, a remarkable and profitable crop can be secured every year. We prefer it to Wilder, and think that it has merits which are not fully appreciated by the grape grower.

Herbert is of better quality, but not so large or so uniform. Early Victor, which originated with John Burr, of Leavenworth, Kansas, in 1871, and was expected to supply a long felt want among very early market grapes, on account of its earliness and good qualities, but it is not large enough, and it ripens little if any earlier than the Hartford. Moore's Early is a large and showy grape, and would, if it were a little more productive, be grown instead of the Hartford; it will be popular, however, over a wide area as a large, handsome, early grape. The Jessica, introduced by D. W. Beadle, of St. Catharines, Ontario, is an early white grape, ripening with Delaware and Lady, of good quality, but too small.

Among new early grapes the most promising that we know of is the Winchell. It originated in Massachusetts, and is the earliest white grape in our collection; the bunch and berry are of medium size, quality excellent, and the vine is vigorous, healthy and productive. Green Mountain seems to be identical with it.

Ulster Prolific is a handsome red grape, introduced by A. J. Caywood & Son, and is said to be a seedling of Catawba crossed with a wild grape. The bunch and berry are of medium size, but the color is bright and attractive, and the plant vigorous, healthy and productive, hence it will undoubtedly be esteemed in some localities.

The Vergennes, which originated in Vermont, is another of the newer grapes which growers will be inclined to keep and cultivate; it is large and of good quality, and the skin so firm that it keeps well and is an excellent shipper. If its color were brighter it would be more popular.

The fact is, that a good red market grape, which will succeed generally, is something that we have still to look forward to. We have the Concord, Barry and Wilder for black grapes; Niagara for white; Brighton, Lindley, Salem, Catawba and Delaware for red; but among these red varieties there is not one which has the qualities which render it universally popular and useful in the sense that the Concord is. What we need is a red Concord, and whoever is fortunate enough to originate such a variety will certainly have a prize. Woodruff Red has size, good color, vigor and productiveness to commend it, but its quality is so poor that it will not become a general favorite. Although quality is not essential in all markets, consumers are becoming more and more particular, and require, in addition to size and appearance, good flavor.

Wyoming Red would be valuable if it were of better quality; the berry and bunch are large, color a bright, clear shade of red, vine vigorous, healthy and a great yielder, but the flesh is pulpy and the flavor poor. In view of its vigor, hardiness and productiveness, handsome appearance and the time

of ripening, with the Concord, it may have value in some localities as a market grape.

The Brighton, which was originated by Mr. Moore, of this city, and which, on account of its superior quality, entitles the originator to be considered a public benefactor, fails in some localities.

The Catawba is another superb grape, but it will not ripen everywhere. Iona, a delicious grape, fails often for the same reason. Delaware, so well known and highly appreciated by the amateur, seems to possess every requisite except size. Jefferson, one of the best of the celebrated Ricketts hybrid grapes, is handsome, and possesses in high degree what has long been sought after in native grapes, refined flavor, but unfortunately it is too late for this locality. And what a misfortune it is that Lady Washington will not mature here. It will be interesting to learn what value is placed upon it further south.

Eldorado, a full sister of that variety, with fine flavor to recommend it, has a serious fault of not setting its fruit, and hence must be included among the valueless sorts.

Empire State, one of the most promising of the many kinds introduced by Mr. Ricketts, the vine is healthy and vigorous and yields well, and the bunch is large, long and showy, and the fruit of good quality, but the Niagara seems to occupy the place it was destined to fill.

Highland, one of the largest and handsomest of Ricketts seedlings, is too late for this latitude. It will undoubtedly succeed farther south where Lady Washington does, as it ripens at the same time.

Moore's Diamond, originated by Mr. Moore, the raiser of the Brighton, gives promise of taking a prominent place among white grapes, but it has not been tested sufficiently yet to warrant us in giving a decided opinion. Those who have grown it consider it an important addition.

Dutchess is a white grape of fine quality, and the vine is healthy, vigorous and productive if planted in a favored spot, but it can hardly be recommended for market. The amateur who possesses a favored location and is willing to bestow extra care upon it, will feel abundantly repaid for his trouble.

The Gaertner is another of the Roger's, which gains in our estimation as a market grape the longer we are acquainted with it. Large, handsome and showy, it attracts attention wherever shown and commands the highest price in the market. The plant is vigorous and productive. For some reason it has failed to receive the attention it justly deserves.

The Niagara is a very popular white grape, and justly so, for up to the time of its introduction, growers were without a really good white market grape. We had, it is true, several white grapes, some of them of very fine quality, but they lacked vigor, health and hardiness, while the rest, though they possessed these essentials, were not good enough in quality to meet the requirements of a market grape. The Niagara has disappointed growers in some places, especially where the vineyardist has grown that variety only and depended upon it solely for profit. It seems to us that with grapes, as with other fruits, there should be several varieties grown, so that if, from some unforeseen cause, one variety fails, we shall have others to fall back upon.

The Pocklington is growing in popularity from year to year, and where it ripens is much esteemed.

Moyer, also known as Jordan, is a red grape of recent introduction, and is said to possess two essential qualities, earliness and excellent flavor. We have not grown it long enough to venture an opinion as to its value. Its clusters are small.

The Eaton, sent out in 1886, by Moore & Son, and afterwards purchased by the T. S. Hubbard Co., is one of a large number of seedlings grown by Calvin Eaton, of Concord, N. H. The bunch is very large, shouldered and compact, berry very large, round, black, covered with a thick blue bloom—in general appearance resembling Moore's Early; in quality it hardly equals the Concord, but its size and attractiveness will make it undoubtedly a valuable market variety, if its growth, hardiness and productiveness are satisfactory. We hope that experience will confirm the expectations raised for it.

Esther, white, and Rockwood, black are two new grapes, originated by Mr. Bull, of Concord fame, both are described as being pure natives of large size, handsome and of good quality.

The Colerain is a new white grape, originated by D. Bundy, of Colerain, Ohio, and is said to ripen with Moore's Early. It is now being tested in different parts of the country, and in a year or so we shall be able to fix its value.

Minnehaha, originated by the late Marshall P. Wilder, is a white grape of fine quality, ripening with Concord, but the foliage mildews badly, hence it has no value.

Victoria, a white grape, the only one of the T. B. Miner seedlings the merits of which had any recognition in this section, has several good qualities, and would have found a place on the list of valuable grapes had the Niagara not been introduced, but that variety supersedes it.

Dingwalls, white, almost for the same reason, is displaced by the Niagara; it ripens just after the Hartford.

Yunker's Honey Dew is a pure native, ripening early, with the Hartford, and in some respects superior to that variety; berry large, round, black with blue bloom, bunch large, long, compact; skin thick, flesh pulpy but sweet; vine vigorous and productive, and foliage healthy.

The Hayes, a white grape, raised by John B. Moore, of Concord, Mass., and offered for sale for the first time in 1885, is not large enough to be in favor with many cultivators; the bunch is short and small and the quality of the fruit medium, and the vine is not productive enough.

A most delicious white grape of medium size is the Golden Drop, introduced by Pringle, of Vermont, in 1869. It will delight the amateur who seeks the choicest, and is willing to give it extra care.

Among high flavored grapes the Eumelan occupies a foremost place. It is not suitable for market, but the amateur can hardly be without it. The bunch is of good size and compact, and berry round and of a blue-black color. It is sweet, sprightly and deliciously vinous, a flavor distinct in every way, and most pleasing to tastes that appreciate vinous character. I speak of this grape because it is gradually being neglected and soon will be forgotten. In my estimation it is too good a grape to be ignored by the amateur. The fact that it is propagated with difficulty and therefore demands a higher price is, perhaps, the reason why cultivators do not give it more attention.

The Telegraph, or Christine, is a market variety which, though rarely referred to by growers, deserves to be mentioned. It is not generally grown at present, but may be regarded as a valuable grape in consequence of its compact, shouldered clusters; it can be handled and shipped successfully and always looks well, so that it invariably commands fair prices.

It is rather remarkable, and at the same time par-

ticularly unfortunate, that the large, showy, fine-flavored varieties of hybrid grapes originated by Mr. Ricketts, should prove to be so ill adapted to general cultivation. For nearly twenty years Mr. Ricketts gave great attention to the raising of new seedling varieties, and by crossing he produced a wonderful collection, embracing many hundred different kinds. Time has demonstrated that the foreign element has rendered most of the seedlings too delicate in habit of growth and foliage to resist successfully the severity and extremes of our northern climate, but it is to be hoped that there will be found some among them which will survive the test and prove desirable. Further south, where the climate is less rigorous, some will thrive, and we believe that the seedlings are of such merit that they deserve to be fully tested in all regions which are likely to be favorable for their growth and culture.

There was every reason to expect most important results from the long, patient and intelligent labors of Mr. Ricketts, and his inability to produce by hybridization varieties better calculated to supply a general need is rather discouraging to experimenters in that line of work. Still his success in producing crosses between purely native varieties, as in the case of Empire State and Jefferson, has been great. I believe that every year's experience enables us to work with greater intelligence and precision, and the field is so broad and the possibilities so great that we should not be discouraged, but rather encouraged to prosecute with even greater zeal and interest the work of producing new kinds by crossing purely native varieties. We should not forget the success of Rogers and Moore in the production of such varieties as the Brighton, the Wilder, Barry, Salem, etc,

*I have annexed a table containing a few other varieties which we have carefully tested in our vine-yard, and which we shall be obliged to reject as unprofitable for cultivation in this locality. They may have value in other places. It will be seen that many varieties which are highly prized in the southwest are valueless here. We hoped to discover some merit in them for this locality, but have been unsuccessful. Elvira is the most promising, but having a thin skin bursts easily.

In closing, I will name the six grapes which have given the best results in the vineyard for market: Lady, Niagara, Barry, Concord, Worden Gaertner.

Mr. T. S. Hubbard, Fredonia, as a critic, desired to say that his experience agreed with that of Mr. Barry, except he would not put Lady first in the half dozen varieties he would select for his own garden.

Mr. C. A. Green said the Delaware did better with him, and was a noble variety where it did well.

Mr. Hoag said that the Concord was not as good in Niagara County.

Mr. Hubbard reminded members that a grape must not be condemned because it does not succeed in every section.

Mr. C. W. Seelye considered Telegraph a difficult variety to manage, the fruit rattling off before it can be got into market. If marketed in good shape it must be packed before quite ripe, and in that condition it is not good, if at any time.

Mr. G. C. Snow would not place Hartford before Moore's Early, and condemned it as a market grape.

Mr. Green asked if the thinning out of Worden as much as the Moore's Early would not have the effect to make it ripen as early.

Mr. Snow hardly thought so. The longer the fruit

^{*} This table is omitted here.—ED.

of Moore's Early remained on the vine the better it was; but before Moore's Early was gonethe Worden is in good condition.

Mr. Hubbard said Moore's Early ripened about six days before Worden.

Mr. Barry asked what experience members had with the Barry and Wilder?

Mr. Hoag had heard that Barry mildewed; but Mr. J. Gardner thought the speaker could not have the Barry, as it did not mildew.

Mr. B. W. Clark said Barry did mildew at Lockport, but not more than any of the Rogers varieties, while it was a better keeper.

Mr. Snow reported Wilder as not a success, because it cannot be worked hard enough; too shy a bearer.

Mr. Hubbard thought the reason why Barry was not better known is because it is not grown more. It was a good grower, and will not overbear as will Wilder.

Mr. Clark never had any trouble with Worden. It would overbear if allowed to. Perhaps the Barry mildewed because he allowed it to overbear.

Mr. Hubbard asked if it was settled that Winchell and Green Mountain are identical, to which Mr. Barry answered "Yes."

Mr. Snow said Brighton was not a success in his section of Yates County. It was a good grape when fruit was obtained, but it did not fertilize.

Mr. Hoag had a few rows of Brighton with Niagara, Delaware and Rogers No. 15 (Agawam), and they always bear well.

NOMENCLATURE.

When the report of Committee on Nomenclature was called for, Mr. Barry referred to the suggestion of the American Pomological Society in regard to giving short, simple names to fruit, etc. In the next ten years seedling fruits would be raised, and it was important that this society should lead in this reform.

Mr. Hubbard seconded the suggestion, quoting as cases requiring such simplification, Woodruff Red, White Diamond, Ulster Prolific, all of which might be shortened.

ORNAMENTAL TREES AND SHRUBS.

Mr. Atwood, Geneva, read a report from this committee. In reference to the same subject Mr. W. C. Barry read the following paper written by Mr. J. J. Thomas, of Union Springs.

ORNAMENTAL PLANTING.

Being unable to enjoy the privilege of attending the meeting of the Western New York Horticultural Society, and being earnestly requested by Mr. Barry to prepare something on ornamental planting, I offer a few remarks on the subject, at the same time taking the liberty of expressing the great interest I feel in the success and usefulness of the society, in my connection with it for the thirty-six years since its origin.

The society, and the community at large through its influence, have made great progress in ornamental planting, at the same time a boundless field for improvement lies open before us. The refining influence of ornamental planting cannot be overestimated, and the attractions it offers to country life, to young people growing up towards maturity, are of a greater value than can be counted by dollars and cents. Nearly every one appreciates more or less the beau-

tiful appearance of a fine landscape garden, but there are few of this great class who can spare the means to go into costly planting. We do not expect anyone to undertake so magnificent a garden as Mr. Hunnewell's near Boston, who applies his expenditures so skillfully and economically that his grounds require an outlay of only fifty thousand dollars a year; but if the spirit of landscape gardening is infused into every one who owns but half an acre of ground, constant opportunities will occur for presenting beautiful shrubs and brilliant flowers even in this circumscribed space; while the owner of the large farm may enjoy the shade of finely developed trees and a handsome green lawn immediately about his residence, and lines of timber screens more at a distance.

A great improvement has been made within a comparatively brief period, in the appearance of village residences by the use of the hand lawn mower, by which a more perfectly shaven green carpet is secured at less than one quarter the labor formerly required in the use of the lawn scythe; and this improvement is mentioned as an instance in which a great deal may be accomplished with little expense. We shall confer a great benefit on the community if we can point out to our neighbors other modes of making these desirable improvements at small expense. For example,-show how grounds may be cheaply ornamented by selecting hardy and free growing plants and trees which will require but little care and labor to keep them in the finest condition, leaving those who have large funds with exalted taste, to indulge in such luxuries as orchids which sell for a hundred dollars a plant.

It may be well to enumerate a few of the ornaments which are easily and cheaply obtained and kept with little trouble year after year. First of all, and peeping out from under the receding snow drifts in spring, is the well known snowdrop, which for long years will hold its place and bloom annually, closely followed by the white, yellow, pink and purple crocus, and by the brilliant blue Siberian squill, and later by the hyacinth and the early tulips. In addition to these, and costing nothing but the labor for collect_ ing, are the wild hepatica in the borders of woods, the white blooming sanguinaria and the vellow blooming erythronium, and the wild trilliums, phloxes, the blue pulmonaria, and many other wild bloomers. The herbaceous perennials, if properly selected, will hold their places where planted for many years, including such plants as the pæonia, panicled phlox, dictamnus, dicentra, the many species of iris, and a long list, of which these are only a specimen. When once established these will hold their places for years. There are some small shrubs of equal persistence, among which the deutzia gracilis is a beautiful and graceful specimen, one mass of which I have seen bearing thirty thousand snow-white, bell-shaped flowers.

These small shrubs, with a number of the herbaceous perennials, although growing without care, will do better and bloom more abundantly in a cultivated bed, which may be either circular or elliptical, and which would be good treatment for all shrubs while they are small, for a few years after planting. Arabesque beds, with fanciful outlines, are best adapted to low bloomers which exhibit the outline, such as verbenas, pansies, snowdrops and squills.

Those who indulge in window gardening, may easily set out beds of pelargoniums and other bedding plants in addition to the ornamentals already named, but there are enough of the hardy plants to give abundant employment and to make a fine display, costing almost nothing but personal labor.

It is not necessary that an ornamental garden or grounds should be laid out in an elaborate manner, or with costly mathematical precision. If the lawn was made even, when first laid out, it is easily kept in the shape of green velvet; and with this as the roundation, occasional elliptical and circular beds will receive all the ornamental plants. Three-fourths or nine-tenths of the surface will be the smoothly shaven lawn, treated with the lawn mower once a week, while the flower beds and the single walk will be easily kept in perfect order. I have seen an admirable piece of ornamental ground surrounding a residence, and about an acre in extent, with a few beautiful flower beds cut in the green turf, which required less than half the time of the gardener who had it in charge. Other grounds badly laid out in lines, squares and dug beds, have cost triple the labor and care, and even then were not in good order.

Among the larger shrubs which will grow freely and with little care except in preserving in them a graceful and symmetrical form, are the Tartarian honeysuckle, the scarlet Japan quince, the three species of philadelphus, the plum-leaved spiræa, deutzia crenata, and two shrubs of rather recent introduction, the weigela of early blooming, and the plumed hydrangea in early autumn and of magnificent growth; while a few climbers and trailers will be quite in place in the rougher and more secluded portion of the larger grounds. A select few are some of the hardiest species of clematis, the delicate akebia, the hardy periploca, the native celastrus, the rank bignonia, and the free-growing ampelopsis.

These scattered suggestions are intended as a few brief hints on a subject which may well occupy whole columns, but it may be well to add a few rules which were prepared some years ago for another article on increasing the attractions of home:

- 1. Remember that buildings cost much, while neatness and planting cost but little and should not be omitted.
- 2. Surround the dwelling with a smooth lawn, graceful shrubbery and blooming flowers.
- 3. Give beauty and finish, instead of disorder and waste.
- 4. Secure pure air, with nothing to impart impure odors.
- 5. Have dry walks about the dwelling and farm buildings—do not tread in mud.
 - 6. Provide a home museum for the young people.
- 7. Assist the young members of the family in the study of the natural sciences in collecting objects, and in sketching and drawing.
- 8. And, as throwing a pleasing and beautiful charm over all the natural objects, cultivate those benign virtues which always present kind and pleasant faces to the occupants of the home.

Mr. Barry supplemented this paper by expressing his surprise at the neglect of wild flowers, which could be so easily and successfully transplanted from the woods. The liver leaf and other anemones would pay anyone for their trouble. Some people object to ornamental gardens because of the expense, but this need not be, as the woods are so easy of access and afford many of the articles needed. Mr. Thomas' idea is to make the surroundings of home more beautiful.

Prof. Saunders agreed with the remarks of the last speaker in reference to wild flowers, and mentioned several additional varieties, viz.: blood root, the Jeffersonia diphylla, or twin-leaf; the wild columbine, with its graceful plumes, which adds such a charm to every garden. There were also two or three cultivated evergreens that might be mentioned. The

Colorado Blue Spruce, one of the most beautiful evergreens in the world. It grows well in all parts of Western Ontario, as far north as Ottawa. There was also the Picea concolor, which, if grown from seed collected from the mountains of Colorado, makes beautiful objects on the lawn. A third species of evergreen is Pinus ponderosa, which succeeds in very arid districts, and will adopt itself to unfavorable conditions. Douglas Fir, seed obtained from the mountains, also does well at Ottawa. The speaker also named one or two deciduous trees that are redleaved in the autumn. A Japanese Maple (Acer Ginnala) is a small, shrubby maple, which he found hardy in the Northwest Territory. Berberry Thunbergii, leaves scartet-red color in the autumn, is a brilliantcolored species and especially desirable in small grounds, attracting general attention and affording much pleasure. He would also mention an Aquilegia Burgeriana, seed obtained from the Botanical Gardens at St. Petersburg, Russia, large blue flowers, very brilliant, and flowering before any other varieties are open. It is one of the most valuable of the aquilegias under cultivation. Aquilegia chrysantha is similarly useful for the reason that it blooms after the other species and remains unmixed.

REPORT OF COMMITTEE ON ORNAMENTALS, BY GEORGE G. ATWOOD.

MR PRESIDENT AND GENTLEMEN:-

After the orchards and vineyards are planted in the country place, after the village or city house is built—the question of what ornamentals to use in the decoration of the surroundings forces itself forward for attention. As no two places are alike in location, color or perspective, so there can be no absolute rule as to what shall be planted for ornamentation. This condition of facts gives opportunity for the greatest skill of the landscape architect, and his efforts attain the highest results only when good taste is combined with a knowledge of ornamental trees and shrubs and of their future care and growth.

No place is too large, too rugged, too hot, too cold, too wet or too dry—and no place is too small—to develop love and genius in the care of some of the hundreds of thousands of flora of this and other countries. There are many instances where immense tracts of land are occupied, and their natural beauties brought out, by a judicious care of what nature has supplied in profusion; and others where barren effects are overcome by transplanting from other soils the species for desired results.

The ends of the earth are searched to supply the conservatories of wealthy people with rare plants, though the chief merit of some may be the dollars paid for them. Contrast with this the devotion shown in the care of a single plant, the ecstasy over a simple blossom in the one-room home of the tenement!

It was a move in the right direction when the study of botany was introduced into the schools, and the "higher education" of the people can only be attained when botany is used in a practical way and when the arboretum, however small, shall lend its assistance, and go hand in hand with, the studies that elevate the students to a greater love of nature, and, by a greater knowledge, develops the genius which can picture to us, in colors or in words, the ennobling influences of our flora and incite to a care of its choicest selections.

Your committee would call your attention to an unceasing popular demand for choice ornamentals, and their general planting will grow as our region increases in population, wealth and refinement. We are supposed to be centuries behind the older countries in landscape gardening; but let us hope the

rigid and exact methods of the East may be left to themselves, while we, in a free country, may be as free to adopt designs as broad as our territory.

We have five times as many species of native trees, that grow over twenty feet, as the whole of Europe, so we are not dependent on foreign lands for material to work with, though we can and do use their best specimens.

A list of what there is to plant would be a condensation of the catalogues of our largest growers and the columns of our horticultural journals, all of which are improving in descriptions and illustrations from year to year.

While the world at large is looking for a blue rose, the rest of us are finding things fully as remarkable; and it seems to be only necessary for a new thing to be needed for it to be found.

The following are worthy of attention and, while all are not new, all are proving valuable as they are further tested.

Ptelia trifoliata aurea, brought out three years since; has solid richest yellow foliage, keeping same color till Nov. 1st or later. It has a gloss on its foliage which brings out the color very beautifully. It makes a big shrub or small bushy tree, of 8 to 15 feet in height, is very easy to transplant and exceedingly desirable and useful to landscape gardeners and all who have lawns. This is of a richer color, and keeps its full color later than any other golden shrub yet introduced. It is the best of all the golden shrubs.

Ulmus sinensis, is a rare but not new tree with leaves about 2½ inches long by ½ inch wide, wedge shaped, with sharp teeth, a hard glossy surface to the very distinct foliage, and the curious and beautiful habit of all the leaves standing in one plane on the growing shoots. This pretty fashion of the foliage has much to do with the great attractiveness of this fine elm. There is a fine large tree of this sort in Central Park, New York, which has been greatly admired by expert judges of fine trees for years. It makes an exceedingly twiggy, thick topped tree and grows with vigor. It succeeds very well grafted high on English elm, for standards, or budded low on that stock for pyramids.

Ulmus Dampieri aurea.—A fine tree with brilliant golden foliage, especially beautiful in early summer and keeps its color till fall.

Ulmus alba pendula Morgani.—A seedling found in the woods of Cayuga County, N. Y., and transplanted by Henry A. Morgan, Esq. Has grown several years, forming an upright center and very pendulous side branches, of free, straight and vigorous growth. The tough character of the long drooping branches adds to the beautiful grace of the trees and commends it to shippers who rarely handle Camperdown Elm without breaking the tops. Foliage abundant, color good, very promising.

Robinia Pseudacacia var. mimosæfolia, is the most beautiful of the large number of varieties of this native American species, which have been originated in European nurseries. As the name suggests, its foliage is made up of a great number of very small leaflets, much resembling the foliage of the mimosa. It is well worth growing for a choice lawn tree, and is now grown largely in the European nurseries.

Forsythia intermedia, is, apparently, a cross between F. susp. and F. viridis, and is very rich in foliage, with much of the trailing habit of F. susp. It ought to be very satisfactory.

Syringa Japonica (Giant tree lilac).—A newspecies of lilac. The oldest specimens in this country are in Boston, and are now twelve years old and over twenty feet high. Foliage is distinct and durable. Blooms

white, on the erect growth and of immense size.

Syring a Japonica argentea.—Is a form of the above well known "Tree Lilac," with foliage broadly marked with clear white, and will be interesting to many as the first "sport" yet obtained of this superbnew species of the lilac family. It originated from seed in Shady Hill Nurseries, Cambridge.

Acer platanoides purpurea (Purple Norway maple).—Originated in Geneva. Color distinct and permanent. Habit of growth like Norway maple, the foliage, however, and leaf-stalks are a distinct reddish purple color, holding permanent in midsummer and especially distinct in spring and autumn.

Xanthocera sorbifolia, is a newly introduced flowering shrub growing to a height of 6 to 9 feet. It produces a long raceme of white flowers with a crimson center; flower an inch and a half in diameter. One of the most remarkable shrubs of recent introduction.

Rhodotypus kerrioides, is a shrub of compact growth, with lively bright plicated foliage, produces clusters of white flowers, which is followed by black, shining seed remaining on plant till new foliage appears.

Calypstiostigma Middendorffia, has yellow flowers, and is called the yellow weigela.

Fagus purpurea tricolor, is a charming acquisition having foliage brightly marked with crimson and white spots. A remarkable variety of Beech.

Syringa villosum, is the strongest grower among lilacs, producing leaves 8 inches in length, flowers pink changing to pure white.

Abies Nordmaniana aurea, is the only well marked sport of this noble fir, and promises to be quite effective, with its deep yellow shadings on the very dark green of this species.

Æsculus rubicunda pendula.—A seedling from the red horse chestnut, with a fine pendulous habit and good red color. This should make a very effective tree for the lawn.

Fagus purpurea pendula.—This new beech is now well proven to be a great acquisition to our finest trees. Its habit of growth is to make a straight leader and to droop in all the lateral branches decidedly. Its color is equal to that of the best purple beech of upright habit.

Hydrangea Hortensia ramulus coccina. This variety, like H. Otaksa, belongs to the Hortensia class but blooms more freely and flowers are brighter and with larger trusses of flowers. The name—red-branched—is given from the fact that its foliage stems are a dark purplish color while the flowering branches are dark crimson, shading toward the heads to a transparent red. The best variety for culture in pots or tubs and for forcing, retaining, as it does, its clear bright rose-color much better than Otaksa or Hortensia. The most reliable of all the hydrangeas of the Hortensia class and claimed by good authority to be the most valuable of all the hydrangeas thus far introduced.

CURRANT PEST.

The report of Erie County was furnished by Mr. Varney, of North Collins, and contained a reference to the ravages of the currant borer.

Mr. E. H. Burson, Clifton, asked what was the best method for the extermination of the pest which destroys the foliage of the currant? Could it not be destroyed in the winter by digging at the roots? Spraying was not always a success.

Prof. Saunders said there were three insects embraced in this problem. The borer is the larva of a small moth. Mr. Berson's remarks appeared to cover.

two distinct species. One is the larva of a moth and the other of a fly-the latter the caterpillar of a saw fly. They pass the winter in a chrysalis state in the ground, very often under the bushes, and may, to a limited extent, be destroyed by stirring the soil and exposing to the air, and by the application of lime; but he did not think it would be wise to depend on this method, for the reason that the chrysalis is so encased as to be almost impervious to the weather, or to the action of any substance applied to the soil. Very early in the spring the chrysalis gives birth to a fly, which lays eggs on the ribs in rows, under the leaves. These hatch in a few days, and the young larvæ soon destroys the foliage. A little spraying with Paris green and water, or hellebore and water. will kill them. In half an hour the bushes may be entirely clean, and very little exertion is required. These flies do not all appear at once. Two weeks later other specimens may come from the ground, and another brood be hatched. Watchfulness is needed to overtake these successive broods. If allowed to mature, the caterpillars will drop on the ground under the bushes, construct their cocoons there and show themselves later in the season.

The second insect is called the gooseberry or currant span worm, for the reason that in crawling it loops its body as if measuring the ground. It is spotted with black, and is about an inch long. It is not killed so easily with helleboreas with Paris green. There is only one brood of this insect in the year. The eggs are laid by the parent moth and remain all the winter attached to the twigs of the bushes, hatching in the spring. They are very small and difficult to determine. One dose of Paris green is generally sufficient.

The third insect, the one mentioned by Mr. Varney in his report, is known as the currant borer. The moth is a very beautiful little thing. It deposits its eggs on the surface of the twigs; when hatched, the young larva eats its way to the center of the stem, and burrows up and down. There is no better plan than the one suggested by Mr. Varney,-to cut off the affected twigs, which is best done in the winter, when there is always a good deal of pruning done. Where the bush is badly affected hollow twigs will be sure to be found. When a hollow twig is once found, further search for the insect should be made throughout the bushes. Where the Paris green mixture is used, as previously referred to, it may be in the proportion of about half an ordinary teaspoonful to a patent pail full of water.

MONROE COUNTY REPORT.

Mr. C. M. Hooker read this report, which opened with the following remarks:

We are sorry to report another unfortunate year for fruit, in the year 1890. Frequent rains at the time of flowering prevented the fertilizing of a large proportion of the apple, pear, plum and cherry blossoms. The two last named were a light erop from that cause. quinces a moderate crop; blackberry crop remarkably large, and other small fruits produced fairly well. Grapes an unusually large crop, Many varieties of apples and pears set a good crop of fruit, but immediately after the falling of the blossoms, the scab fungus developed in remarkable abundance on the leaves and young fruit, causing the fruit to drop, or rendering it worthless, and in many cases nearly denuding the trees of foliage, and thus seriously checking the growth and affecting the health of the trees, An examination at the present time shows only a moderate number of fruit buds formed and probably there will not be a heavy crop the coming season, unless the season proves unusually favorable. It was

observed during the past year, as in previous years, that the pollen from the flowers settling upon the leaves and fruit provided just the nourishment suited to the scab fungus. This was proven to be the case from the fact that when only part of a tree blossomed, upon that part the fungus developing from the pollen resting upon the leaves and fruit could be readily seen, while the rest of the tree was yet in a healthy condition. The apple orchards of Monroe County have produced but four good crops of fruit in the last ten years; and as a result, orchardists were becoming discouraged, and the planting of apple trees has nearly ceased. Such fruit as was grown in the county last year all brought high figures, and good crops next season may yield profitable returns, as the markets are bare of dried and canned fruits to a remarkable degree. Good crops and prices this year will go far to make up past losses.

Mr. Barry asked Mr. Hooker to make further explanation in reference to the scab fungus.

Mr. Hooker said he had had some disastrous experience with it. Persons were apt to think the destruction of the apple crop was owing to the heavy rains of last spring. It was a fact that rains destroyed the blossoms before they were set, but the laterplums set and produced a fair crop of germs. At that critical time the fungus appeared. There was a fair setting of apples of some varieties, but later observation revealed the fact that the foliage showed a mould, and dark spots were forming on the apples—the scab fungus. Experiments have been made at the stations at Ithaca and in Wisconsin, to prevent or destroy this fungus. Year before last Prof. Goff's experiments tended to show that the use of carbonate of copper in connection with ammonia solutions, was a good specific, the fruit benefiting after seven applications. It was a poisonous article and must be used with care. In a recent letter, Prof. Goff stated that his experiments have since been more extended, but said that carbonate of copper used in double strength (8 ounces to 100 gallons water) was found to be pretty successful, although the season was very wet. apples affected by the fungus shriveled up and fell, and the leaves turned yellow. The leaves in many cases were nearly all destroyed, some turning black and falling off.

Professor Bailey gave a statement of the appearance of the scab fungus and of its effects on fruit. He thought that the failure of the apple crop was almost entirely due to the fungus. While it is not known where the fungus lives in winter the speaker believed that it existed on the twigs and dead leaves, and he thought it likely that the damage might be to some extent averted by spraying the trees in the winter season. The fungus might not appear to any extent next season; but it will always be present. The speaker was prepared to combat the idea that arsenites would destroy foliage. The experiments at the station last year proved this, but that they were scorched by the fungus. They must distinguish between the action of arsenites on leaves and that of the insects which attack them. Arsenites must be weighed out, and when mixed must be kept in a state of constant agitation while using. Coarse spraying produced more injury than the finer. The same amount of poison applied through a coarse spray did more damage than if applied through a fine one. The best plan to combat the plum curculio was to spray, and at the station they expected the same results from spraying for curculio as for codling moth. He thought the advent of the arsenical sprays for almost all kinds of leaf-eating and fruit-eating insects. had worked a new era in horticulture.

In reply to the question, "What about the apple crop this year?" Prof. Bailey thought they would have a good crop.

Mr. Hooker explained that he was not opposed to spraying, but simply desired to go on record as calling attention to the danger of spraying. Properly done, spraying could be used on the apple to advantage, but if they could dispense with it on the plum he thought it best to do so. He quoted an experience of his own, where in spraying on the plum he came very near losing the crop. He had observed for a number of years that scab fungus developed on the branches that blossomed and the contiguous foliage, which convinced him that it developed there quicker than any place else.

Prof. Saunders stated that fruit was very often seriously injured by the growth of the scab after the fruit was barreled. That may be prevented before barreling by burning a little sulphur in the packing-room, the sulphurous acid vapors permeating the fungus. He had never found spraying to injure plum trees.

The mixture must be agitated constantly. If the arsenites were used strong enough, of course they would injure the leaves. There is no danger in using one pound of Paris green to 200 gallons of water on the foliage of the plum, or of the rose; but he would not say so much for London purple, it varies so in strength. Carbonate of copper, used in its insoluble form, gives the same result as where dissolved with ammonia. Copper salts are not so very poisonous, and are not to be classed with arsenical preparations. There was a distinction to be drawn between the use of copper salts and arsenical salts. He did not think there was any danger in using carbonate of copper, in proper proportion, for the destruction of this scab fungus. He did not think the fungus fed on pollen. Still the facts brought forward by Mr. Hooker seemed to point to the conclusions that gentleman had reached.

Mr. D. G. Fairchild, representing the Department of Agriculture at Washington, made the following points:

I. Arsenites are injurious because of the arsenic

II. Lime is a neutralizer for this acid.

III. Chemical aniline dye manufacturers will perhaps learn to use more lime, and thus neutralize the arsenic acid.

IV. Carbonate of copper in suspension proved ineffectual in Virginia with them the past year, but ammoniacal solutions were very effective.

V. Apple scab fungus and pear scab fungus are not the same.

NIAGARA COUNTY REPORT.

This report, prepared by Mr. I. H. Babcock, was read by Mr. B. W. Clark. It stated that with more acreage of orchards compared with area than any other county in the United States, this county with its great apple orchards had, during the past year, to buy apples even for home consumption from the west, something that had never before occurred. After the summer apples, not a barrel of merchantable fruit was harvested. The pear crop was unsatisfactory, probably due to heavy rains. Messrs. Moody & Sons, from 220 Keiffer trees marketed 630 bushel kegs, which sold at an average of three dollars per keg. This was the fourth crop on trees seven years grafted. Plums were only a partial crop, still this firm just named sold 2,000 bushels of Lombard at three dollars per bushel, 1,000 bushels of Niagara and 300 of Reine Claude at six dollars per bushel. From the Geo. W. Bowen orchard, Newfane, 2,200 8-lb. baskets of Lom-

bard and Reine Claude were sold for \$1,000, and 2,000 baskets of peaches realizing \$2,500. This orchard is located midway between Mountain Ridge and Lake Ontario, on light sandy soil. The ground receives garden culture to about August 1st, when cultivation ceases entirely, and the trees are grubbed regularly every spring. They were also sprayed with a solution of Paris green and Babbitt 76 mixture. In addition to all this, the plat of peaches and plums receives yearly an application of one thousand bushels of unleached ashes, besides some stable manure. It does not suffer from curled leaf or the yellows. Grape growing was receiving increased attention in Niagara county, especially north of what was known as the mountain ridge. Everything is favorable to the grape, and frosts hold off two to three weeks later there than in other localities. The report emphasized the value of the Niagara grape, which was originated by Mr. Hoag of Lockport, the original vine of which bore a large crop last year, and had never missed more than one crop, and then on account of late spring frosts. The small fruit crop of the county was small, but high prices compensated in part for the failure in quantity.

Mr. Hoag wished to correct the statement as to the failure of the original vine of the Niagara to fruit last year. It had never failed. He also stated that credit for introducing the Niagara should be equally shared with Mr. Clark and himself.

Mr. Barry was glad to claim these gentlemen, the originators of the Niagara, as members of the Western New York Horticultural Society.

EVENING SESSION.

Mr. Barry introduced to the society Mr. D. G. Fairchild, from the Department of Vegetable Pathology, at Washington, D. C., who presented the following paper:

DISEASES OF THE GRAPE IN WESTERN NEW YORK.

The grape vine, although perhaps in many ways the most obedient of woody cultivations, is at the same time liable to numerous dangerous diseases. While it may be made to assume almost any form upon the trellises, it requires careful protection from the host of fungous enemies which beset almost every cultivated plant. There are recorded for the United States alone over fifty distinct species of fungi which have been found growing upon Vitis Labrusca, and while many of these grow only upon the dead canes or leaves, numerous distinctly parasitic forms are found, which it is the purpose of this paper to deal with briefly, touching only those as are of such abundance in this locality as to cause serious damage; and first, that we may better understand the nature of the thing spoken of, it will be best to define a parasitic fungus. All fungi are plants and not insects, and differ from common flowering herbs in the absence of green leaves, green stems, and flowers. They may be divided into two groups, parasitic and saprophytic, that is, growing upon living matter or upon dead matter, and it is in the former of these groups (parasitic), almost exclusively, that the horticulturist is interested.

Downy mildew (Peronospora viticola, B. & C.)—Perhaps the first disease caused by one of these parasitic fungi, both in abundance and productiveness in this region is the downy mildew. This disease, called also grey rot in its early stages upon the berry, and brown rot in its later, has been well known both in America and Europe for many years and, in fact, stands to-day as one of the best understood fungous diseases of cultivated crops. The whole story of its life as revealed by the microscope is in brief as fol-

lows: Into a region where for years perhaps grape vines have been grown luxuriantly without a sign of disease the winter wind blows from some distant region where the downy mildew is present a dried leaf in which are buried the spores or seeds of the minute fungus. This leaf caught by the trellis is beaten to the earth by the spring rains and gradually decays, and by the time the young leaves of the vines upon the trellis above have begun to expand, it has become completely disintegrated and has loosened from their long resting places the hosts of spores which were contained. These spores which are contained in small spherical sacs, are blown by the wind upon the soft green surface of the leaves, where in the warm moist atmosphere of spring they creep out and swim about in the drops of moisture which collect upon the under side of the leaf. After roaming about for a few hours they come to rest upon some favorable spot and grow, sending out a minute rootlet or germ thread into the tissue of the leaf much as a small seed would send its root into the soil. When once beneath the skin of the leaf, the root (hypha) begins to branch as a root of the higher plants branches, and sends into the cells of the leaf short branchlets or suckers which absorb from these cells the nutrition which had been sent from the stem below for the growth of the leaf.

As the growth of this tiny plant continues it sends up from its mycelium or root system innumerable branches through the breathing pores of the leaf which bear upon their branching tips countless thousands of shining white spores called summer spores because produced only in the summer season. These summer spores, which have doubtless been seen by many present upon examining the underside of mildewed leaves, as a shining white powder, have very tender skins and are easily destroyed, but if allowed to rest upon a healthy leaf in a drop of water or in moist air grow at once and form new fungous plants which in time kill the leaf either wholly or in part. These summer spores which, as just mentioned, are produced in countless thousands, are blown from this one leaf perhaps in a single day over the entire vineyard, infecting occasional leaves upon almost every vine. From these newly infected leaves the fungus spreads until the foliage of the vineyard is entirely destroyed. This mode of summer fruiting is continued by the parasite until late in the autumn, when within the leaf are formed in small sacks or balls with tough leathery coats the hardy winter spores which are capable of living through the winter and infecting, as before described, new vineyards the following spring. Thus is completed the life cycle of this well known fungus, and it may be said in this connection that in a general way this represents the history of the great majority of these fungi which attack cultivated plants.

When we are acquainted with all the habits of any obnoxious plant we may begin systematic and intelligent efforts to eradicate it, but not until then. So it is not until we fully understand every step in the life history of a disease that we can expect to be successful in preventing it.

From a study of the above outlined life history it would be evident to any intelligent observer that all diseased leaves and berries should be burned in the fall in order to kill the winter spores, and it would also be evident that any mixture spread upon the young leaves before they have become diseased, if it was of such a nature that the fungus could not grow through, it would prevent the spread of the trouble to all leaves covered with such a mixture. If these two ideas were continually kept in mind in the treat-

ment, not only of downy mildew but of the majority of fungous diseases, the many grave errors which are constantly arising would be avoided.

The powdery mildew (Uncinula spiralis, B. & C.)— This disease differs from the previous one materially in that it is entirely superficial in its habit of growth, living almost wholly upon the outside of the leaves and fruit of the grape, causing the dirty white coatings so well known to all grape growers. From an inspection last fall of numerous vineyards through this section, the powdery mildew appears to be one of your most abundant pests, and except in vineyards treated with the mixture of blue vitriol seems to ruin many clusters for market purposes. The life history is similar to that of the downy mildew, with the exception that the winter spores, which in the downy mildew are formed within the leaf, are built upon its surface and can be easily seen with the naked eye if sought for late in the fall. These winter spores which are contained in little covered basket like bodies about the size of a pin point are washed to the ground from the leaves while yet hanging to the vines and remain dormant until the following spring, when they are blown upon the leaves and germinate, spreading their threads over its surface and clinging by small suckers to its upper skin (epidermis). Through these small suckers which are the only parts of the fungus which enter the grape leaf, is the sap drawn upon which the fungus lives and without which the leaf dies. After the young parasite has gained a foothold upon the grape leaf, it begins immediately to send up short branches into the air which form in countless numbers the second kind of spores (summer spores) which are capable, when blown upon healthy leaves or berries, of infecting them and causing new diseased spots. In the fall, again, after these summer spores have been produced for many weeks, the small baskets of winter spores are formed, ready the next spring to begin their life cycle anew.

Black rot [Læstadia Bidwellii (Ell.) V. & R.]—This destructive disease, especially dreaded by vine growers of the Southern states where the long humid springs nourish the rapid growth of the little parasite, is beginning to make its appearance slowly in many vineyards of Western New York, and although it may be doubted if it will ever prove so severe a pest in the colder latitudes as it has been in the South, its progress will be watched with suspicion.

The life history of this fungus, which is purely an American one and has probably lived for many years previous to its discovery in the vineyards upon the wild grape vines of the United States, differs some_ what from that of the downy mildew. The winter spores, which in the case of the mildew are formed in the leaves, are contained in the black rot in little cavities or pustules in the black shriveled remains of the berries, which are so characteristic of the disease. These dried up berries which are generally allowed to drop to the ground since unfit for use, through the months of winter conceal thousands of minute sacks within each of which are a number of hybernating or resting spores, only awaiting the copious rains of spring to be loosened from the rotten mass of grape tissue and blown upon the green foliage which has made its appearance. When once upon the leaf, the spores grow and produce small round or oval brown spots not more than one quarter of an inch in diameter. In these spots are little pustules or pimples which exude in jelly-like masses myriads of little round spores which are washed down the stems or drip from the edge of the leaf upon the young grape clusters beneath. When these spores, washed down thus, have gained a favorable resting place upon the

berries they grow and send their threads into the soft pulp of the berry, causing it to turn brown, then black, and later to become covered with pustules, like those upon the leaves, which exude the spores in masses in a similar way Sometimes only a part of a cluster is attacked, but on account of the multitude of spores formed in the berries, as just stated, more often whole clusters are diseased. These diseased clusters which fall to the ground have formed within them later the winter spores, ready the coming spring to spread the trouble again.

Glæosporium of the grape (Glæosporium fructigenum).—Closely related to the black rot in general appearance and often no doubt confounded with it, is a peculiar disease which, until the last year, has received practically no attention from mycologists. The fungus causing this disease which attacks the berries when they have begun to ripen and not, as in the case of black rot, while they are still not more than one half grown, causes the berries to soften and turn a dark shiny color often showing reddish pimples upon the surface. The tiny plant which causes the trouble is peculiar in finding a second home in the well known bitter rot spots of the apple, and if one of the apples with the characteristic large black rotten spot upon it were thrown into the vineyard or placed upon the post of one of the trellises, one might expect to find in the course of a few days signs of this disease upon the grape clusters. Unlike any other of the diseases of the grape, this one will be likely to spread after the grapes are crated and await the attention of the packers. One diseased berry under favorable circumstances being able to infect a whole crate and render it unfit for market. The life history of the fungus is, so far as known, a short one. The young rootlets, or more properly fungous threads, penetrate the soft grape pulp and after living within the delicate substance for about seven days form spore pustules under the skin which finally break open and allow myriads of minute pink spores to escape, which when washed upon healthy berries grow and produce similar diseased spots and similar pustules. This new disease, unless guarded against, may prove to the Northern states what the black rot has been to the Southern, and demands attention from all grape growers.

The Authracuose, which has in some parts of the state been bitterly complained of, is not, so far as seen, in this section nearly so destructive as other diseases, but from the fact that it has proved a difficult one to deal with should be looked after with scrutiny. In nature it is very like the glæosporium disease just mentioned, only inhabiting both stems, leaves and fruit, causing large irregular dark patches sunken beneath the surface and often containing greyish white centers. The fungus which is a very low form is propagated from plant to plant by spores which are blown by the wind and require moisture in order to germinate. No winter stage has, as yet, been discovered for this fungus.

SUMMARY OF THE NATURE OF FUNGOUS GROWTHS. After this somewhat hasty outline of the nature of these low forms of life as causes of grape diseases let us look at what has been done and may be done in the prevention of these pests which when unknown seem so mysterious and threatening. An intelligent understanding of what these plants are and how they live is absolutely essential to success in the treatment of them.

At the outset let it be understood as a fact now acknowledged by all students of these fungous diseases, that after the fungus has once gained an entrance to the inside of the plant any amount of manuring or

cultivating cannot prevent the portion diseased from being lost. These diseases are similar to cancers. upon animals, and not to fevers or such maladies asaffect the whole blood system. Since one can take upon the point of a needle a few spores from a diseased leaf and put them upon a healthy leaf which has no connection with the plant, place it under a tumbler for a few days with the stem in water to prevent it from wilting, and secure the characteristic spots of the same disease, can anyone doubt that the trouble is merely a local one and not in any way connected with the sap circulation, and when added tothis fact is the one also equally well known that leaves. and branches absolutely protected by paper sacks or bell jars do not suffer from these diseases, is thereroom left for a single doubt?

THE TREATMENT.

From the foregoing it follows that treatments must be altogether preventive—the invariable answer to the often asked question "what is the cure for this or that disease," is, "there is none, only a preventive." For downy mildew (which term may be used for both brown rot and grey rot), authracuose, black rot, powdery mildew and the grape gloeosporium, the following methods of treatment cannot fail to bring favorable results.

I. In the fall at pruning time remove from the vineyard every vestige of diseased canes, leaves or dessicated berries and either burn them, which is preferable, or bury them deeply in the earth. By all means avoid leaving them exposed where the wind can scatter the leaves back towards the vineyard, and do not, under any circumstances, incorporate the *débris* with the compost which is to be used upon the vineyard in the winter or spring.

II. Spray the vines thoroughly, by means of any of the well known force pumps, with one of the copper mixtures.

From past experience the solution of copper carbonate in ammonia water is to be highly recommended as being effective and at the same time the most economical of all the copper mixtures.

The prescribed formula has hitherto been 3 ounces of the carbonate dissolved in one quart of 20 per cent. ammonia water and diluted with 22 gallons of water, but a better one, as later investigations have proved, would be to dissolve 5 ounces of copper carbonate in three pints of the strongest water of ammonia, 26 per cent., and dilute with 50 gallons of water, since the 26 per cent. contains proportionately more ammonia gas than the 20 per cent. per dollars worth.

The practice of buying all chemicals from whole-sale houses has no doubt suggested itself as a most economical one, since no loss is incurred from keeping copper carbonate or ammonia from one year to the next.

As several chemical firms have shown a disposition to take hold of the matter of manufacturing a more convenient fungicide, it is to be hoped that before another season ten pound cans of a mixture equivalent to the ammoniacal solution will be put upon the market at reasonable prices.

To many, no doubt, these formulæ are familiar and have probably received various modifications, but the percentage of copper, which is the active principle of the solution, is doubtless near the mininum quantity for safety. A lessening of this per gallon of water will endanger the vines to the attacks of the various diseases.

For the Southern states where the black rot ravages the vineyards to such an extent that the entire crop is often lost, six and even eight sprayings are none too many to keep back the powerful parasite;

but in these cooler latitudes where this fungus does not seem to flourish so luxuriantly and where the downy mildew, powdery mildew and anthracnose are the worst pests, four sprayings, if thoroughly done, may suffice. However, no hard and fast rule can be laid down in regard to the matter, for the abundance of the parasite and frequency and copiousness of the rains must modify the applications. In any case, however, the vines should be kept covered with the mixture, as only those parts which are covered with a coating of copper carbonate are protected from the parasite. As regards the time of application of the solution, the necessity of early spraying cannot be too strongly urged. Make the first application at least one week or ten days before the young buds have fully burst their winter coats, just as the red tips of the first leaves are beginning to show. If this precaution is taken the tender leaves, as they unfold slowly, have already upon them considerable quantities of the solution and are shielded, from birth as it were, from the attacks of the parasite, whose winter rest has been so timed that it is actively at work from the first swelling of the buds.

The second spraying may be postponed until after the leaves are about one inch to an inch and a half in diameter, but not later, as a day's growth of the fungus upon a few tender leaves at this period will cause great trouble subsequently, acting as seed beds for the propagation of the trouble. Later, when the flowers have fully opened and the insects are busy about the clusters, the third spraying may be done without fear of injury to the blooms which have been fertilized before the caps have dropped off, and ten days or two weeks later when the fruit has attained the size of garden peas, the fourth application may be made. A fifth may be held in reserve in case the disease gains a foothold upon the vines.

If the above general outline of treatment is followed, modified in non-essentials according to the peculiarities of the season and locality, immunity from downy mildew, also called brown rot and grey rot, powdery mildew, black rot and the gleosporium, which was mentioned as causing also the bitter rot of the apple, can be almost positively insured. As regards the anthracnose, which is in some sections the most serious pest, so many conflicting reports have come in that we are loth to promise such signal success but hope, in the near future, to prove this parasite as easily subject to the copper mixtures as those mentioned. Numerous other mixtures have been used against it, but as yet not sufficient accurate data is collected to warrant positive statements in regard to it. The destruction, by fire, of all diseased parts, however, is sure to bring most beneficial results as in the case of any other plant disease.

THE NEW DISEASE (ROUGEOT).

About the first of September, 1890, complaints reached the Department from numerous localities through Western New York, of a disease which was threatening the new and promising industry of grape growing in that region. Specimens were received from various parties and, although carefully examined, revealed no signs of any parasite active upon them. Accordingly, although so late in the season that many of the vineyards had been touched by the frost, an examination was made of numerous vineyards in different localities through the infected region and notes taken of the varying conditions under which the disease appeared. From a study of the trouble in October the following diagnosis may be made: The leaves first show the disease, manifesting at the outset irregular somewhat star-like red blotches between the veins which gradually enlarge, run together, at the same time becoming browner until finally they fill up the spaces between the main veins with a deep red-brown tissue, giving to the leaf a pronouncedly striped appearance. This striped look is quite characteristic and may often be noticed for several rods. Upon those vines diseased, the berries are of a decidedly insipid flavor, often intensely sour and drop from their stems, in the later stages, on the slightest touch. Badly diseased vines may often be distinguished by the layer of shriveled berries covering the earth beneath them.

The trouble is not entirely confined to cold, heavy soils, although seemingly worse upon such land, nor is it connected, so far as can be ascertained, with the use or absence of any fertilizers. The shade, which is afforded by foliage trees and houses, although in one or two cases seeming to afford protection, cannot be surely connected with it. Examinations of the roots of many diseased and healthy plants, while revealing the fact that the young fibrils had almost entirely rotted away in case of the diseased, and were only partially decayed upon the healthy, have shown no parasite of a nature adequate to cause the injury.

In some respects the disease resembles that which lately appeared in California and threatened the grape interest of that state, and until one or both are more fully worked out, must stand in the same general category.

Comparing it with the description of the French malady known as Rougeot, it is found to possess many points of resemblance and as such, noticed in the Southern Atlantic states, was probably considered by the eminent French viticulturist, Viala, in his journey through the United States. In the judgment of this viticulturist, rougeot follows as a concomitant a sudden lowering of the temperature in midsummer when the vines, loaded with fruit, are in full growth and is much more likely to occur upon heavy ill-drained soils than upon light well drained land. Both Viala and Foëx consider it nearly related to appoplexie and recommend as the surest preventive from its attacks thorough underdraining. If the wood has failed to mature, and enough bearing wood cannot be secured to furnish good healthy canes, the wisest plan will be to prune close to the ground and raise an entirely new growth.

Although considerable time and attention has been paid to the class of diseases to which this new disease properly belongs, the prime cause, whether of a bacterial nature or physiological, is not positively known, and until a longer time for experimental research is afforded, the trouble must remain only partially explained. Whether or not the malady will appear again through the vineyards of this section next year it will be impossible to predict, but should it make its appearance the opportunity cannot be lost of studying it in all its characteristics and finding a specific remedy.

Mr. McMillan asked the speaker if downy mildew ever attacked the fruit and not the foliage?

Mr. Fairchild—"You might find it on a cluster of fruit and not on the leaves above, but in the whole vineyard you would find it somewhere on the leaf. It does not appear on the berries when appearing on the foliage."

Replying to other questions, the speaker said: It is not the same mildew as is found on the gooseberry, but is nearly related and so nearly like it as to render it difficult to tell it. The ammoniacal solution can be used as a remedy in both cases. In the case of the downy mildew the application should reach all portions of the leaf. This solution will

never hurt the foliage when properly prepared. If you make a solution of copper sulphate, in the proportion of six pounds to twenty-two gallons, and spread on the leaves, you will lose the leaves. The acids are extremely injurious to foliage and must be neutralized.

Being asked in reference to the use of lime in mixtures, Mr. Fairchild said: Lime is put in to neutralize the acid, because unless neutralized, you lose the leaf. The difficulty experienced by the questioner in getting lime through his pump might have arisen from having too much, or it might have been left too long and settled, thus clogging the pump. The Bordeaux mixture will do this. The Vermorel nozzle is the only one that will throw a Bordeaux spray. The experiments show that the ammoniacal solution is effective in the pear and leaf blight. Two or three sprayings are sufficient in an ordinary season. For leaf blight it should be used as soon as the leaves are well formed. The apple scab fungus has been well controlled by the ammoniacal solution, without damage to fruit.

Replying to questions concerning how best to obtain the material, Mr. G. C. Snow stated that he had his carbonate of copper prepared by the druggist in his town without any difficulty.

Prof. Saunders said that any man who knew enough to make a cup of tea could easily prepare the mixture.

In answer to other questions Mr. Fairchild said there was no remedy for twig blight except to cut off and burn. Great care must be exercised in being particular not to leave any of the affected twigs lying around on the ground. He should not think plowing under a reliable experiment, because there was a possibility that spores might live more than one year, and hence the practice of plowing under might prove dangerous.

Prof. Saunders paid Mr. Fairchild a very high compliment for his paper, and moved a vote of thanks.

Prof. Bailey seconded, remarking that the paper had given them some indication of what the Department of Agriculture at Washington was doing. He did not think the people appreciated the work that was being done. The paper was a specimen of only one branch of the department, and there were other branches equally as energetic, the work of which was of direct value to farmers of every kind. The character of the work was known all the world over, the men engaged being specialists and to be fully relied upon, the results of whose work were simply astonishing. After listening to the able paper of Mr. Fairchild, he thought they would be more inclined to support the department.

Mr. Hunt said he had heard a Hudson River vineyardist say that he had realized \$4,000 from his vineyard that he would not have had but for the information he had obtained from the Department of Agriculture.

Mr. Barry feared they were all slow to appreciate what was being done in these educational institutions. It often happened that they found fault with the theories and teachings of these institutions, but when they learned of the experiments being practically carried out, as narrated by Mr. Fairchild, they could not but admit that the experiment stations were doing good for this great country. It meant good not alone for the fruit grower, but for everyone in the land. They must, therefore, encourage these institutions more.

The vote of thanks being called for was heartily adopted.

PRAIRIE GARDEN NOTES.

It is common in these prairie countries to hear women, who in all new settlements must perforce be the gardeners, say: "Back east you have only to stick a thing in the ground and it will grow, but here nothing grows." Twenty years ago I heard the same complaint from men concerning orchards, yet now Kansas ranks high as a fruit state and new varieties originated here are catalogued and praised by eastern pomologists.

This article will give the experience of one who has found at least a measure of success. Our first orchard was burned up in a fierce prairie fire, which was particularly discouraging as it had just begun to bear, but the second, planted nearer to the house some twelve years ago, has been bearing well for five years, and gave us some fruit before that. As with the orchard so with the garden, labor and study bring their own reward.

What, then, are the difficulties which discourage the gardener in prairie settlements of the west? Simply expressed it is all in the openness of the situation. The early settler took up all the land along the creek bottoms, and for the later comer the garden spot surrounding the "little sod shanty on the claim" stands open to the fierce sun of summer and the far worse drying winds, beginning early in the season, to the winter, bare of snow most of the time, and a thermometer ranging from 98 above to 30 below zero, and performing surprising gymnastic feats in its travels.

Fenceless also this garden is save sometimes for a wire or two stretched on far distanced posts, which serves only to keep out larger animals, leaving it open to the no less damaging small fry, chief of which is woman's bugbear, the omnipresent hog; open too, alas, to the unmanageable animal on two legs, which Mr. Vick, Sen., long ago pictured in his catalogue with hoe on shoulder and one foot in the flower bed, taking, presumably, a short cut to the field. That this animal is still kept on western farms is, I find, a fact, for I read recently in a home paper a description of that picture from a woman who added "that is my husband exactly." The inference is that nothing can be done without a fence and it is about correct. Let village improvement societies tear down their fences if they will, they would

improve on their improvements if they would load up their fence material and ship it to the literally de-fence-less prairies.

Now, how shall a woman who has little money, strength or time, proceed to garden against all these difficulties? In my own case the fence had to wait, but I had a chance to get slips in quantity and some rooted plants of the Lombardy Poplar, (and here let me speak a good word for this tree, despised as I find it is by some,) they were easily within a woman's handling and grow readily from slips, and I planted them thickly on the south and west, on the east were three or four rows of seedling peaches, and in two years I had a very fair windbreak; the habit of growth of both peach and poplar breaking the force of the wind near the ground; the break was not needed on the east so much, but was never objectionable even there; but those who can have a site with eastern or northern slope should avail themselves of it, and will find gardening less difficult than with slope to west or south; in any case I should want a southern windbreak and especially southwestern. Failing the peaches and poplars, seed of native trees, preferably box elder, maple and ash, are easily obtained in the timber adjoining streams, are rapid in growth and if thickly sown will take the place of a fence. Unless protected in some way it is useless to plant seeds of small plants in the open, they may come up in a night and an hour's wind so whip the little plants off the face of the earth that you might think the seeds did not germinate and blame the seedsman.

I have always started my seeds in a bed lying along the east side of the house, boarded up higher than the earth and covered also by boards during wind, leaving a space on the lee side for air and light. Those which must be planted in open ground should be watched, and when whipped by wind have the earth drawn up closely around them by a hoe until they become stocky enough to withstand it. After a year or two experience in picking up pea vines, driven into the mud by heavy rain and wind, to gather my peas, I decided that hereafter they should be brushed. There was plenty of peach brush at hand and I tried it. I think I get more peas even from dwarfs by giving support, but every year I have

to personally superintend the cutting and setting of that brush. Cut too long and weak, or too top-heavy, or not firmly set, when loaded with its vines it is easily blown over by the wind which accompanies or follows our rains. I set my brush before planting the peas, in the bottom of the trench made for them; cut stout sticks, leaving only just enough twigs for the tendrils of the pea to catch on, set down firm in the bottom of the trench, sow the peas and hoe the earth well over and the sticks are firmly held. Rows of peas well brushed in this way can be used to shelter early small plants, and if the garden is late corn may answer the same purpose. But seed planting in this latitude, 38-40, should not be delayed till the sun getshot, I would rather risk slight frost than the hot sun on young seedlings. My best success has always been obtained by early planting of anything but the tropical seeds and plants; our seasons give us about two weeks of time in advance of that specified in eastern catalogues.

Small fruit, save perhaps the grape and strawberry, need protection from southern wind and sun. The bark of early Richmond trees, and some other cherries, splits badly on the side exposed to it; the currant will not live in it at all, and few of our flowering shrubs are uninjured by it. The syringa (philadelphus) loses its leaves and blossoms, and the early tender leaves of the lilac suffer, though the flower escapes.

Melons, squashes and the like, need not occupy space in the garden, they will do their best when planted on new broken land. Take a pointed stick and make holes in the upturned face of the sod, drop in the seed and firm it down with the foot and the work is done till gathering time. It is rarely any insect, save the small boy, molests them on new ground.

The prairie settler who longs for the garden pets of the old home must exercise patience; few of the older States or countries have the climatic conditions of the prairie; the tempering winds of the ocean do not reach us, instead we have winds from over hundreds of miles of sandy country overlooked by hot suns, daily and yearly modified and softened; every settler who plants a few trees helping on the good work, and seldom we who came here twenty years ago find anything we want to grow for which a

suitable location can not be found; some knowledge of the requirements of a plant should be had, and may easily be gained by studying nothing more than a catalogue, then give each the nearest you have to their native habitat.

Many hardy flowering plants, such as hollyhock and campanula, if planted where our warm sun has full power on them, say on the south side of a fence, will leaf out in midwinter only to be destroyed by later cold weather. The way to have such plants thrive is to grow them where they will not get much sun after early morning. The north side of a fence is best.

Cover the strawberries and tulip beds or other plants exposed to the sun with leaves, hay or some such material, but do not put it on until after frost and avoid covering the crown or heart of the plant heavily. Many of these live in severer climates when covered with snow, but this we cannot count on, so the leafy covering must take its place.

SILEXIA ENGLISH.

PRIZE VIEWS OF BAD ROADS.

The League of American Wheelman offers three prizes of \$50, \$30 and \$20 for collections of photographs, of not less than three each, showing bad roads and the difficulties that teamsters and farmers have to meet in connection with such roads. Photographs must be submitted on or before May I, 1891, at which time competition closes. Full information on the subject will be furnished on application to Isaac B. Potter, 278 Potter Building, New York, or Charles L. Burdett, Hartford, Conn.

HORTICULTURAL REPORT.

Eight pages have been added to this month's MAGAZINE to give room for a portion of the report of the late meeting of the Western New York Horticultural Society. The whole of the proceedings of this meeting were full of interest and importance to fruit growers and to all who intend to plant or cultivate fruit trees even in a small way. There is much in it, also, to interest amateurs with fruit and ornamental trees. Attention to the diseases which affect our fruit trees and vines is now so imperative, we have thought no better service could be rendered our readers than to lay before them

as much of this report as possible at the earliest opportunity. More will be given next month.

Acting President Willard in his address appropriately and feelingly noticed the members who had died since the last meeting in the following words:

"It becomes our painful duty on this occasion to record the death of several members of such prominence and essential worth that more than a passing notice must at this time be given each. Patrick Barry of Rochester, Robert J. Swan of Geneva, John B. Dixon of Geneva and Luther E. Barber of East Bloomfield, will no more meet with us in this assembly chamber, each of them men who, in their respective vocations of life, discharged their duties with such fidelity that long time must elapse ere their names can be forgotten.

"Little did we think a year since that before another twelvemonth should have passed we should have been called to mourn the loss of our beloved president. Patrick Barry on the morning of June 23d last passed away to his heavenly home, and the accustomed cordial greeting ever extended to you at eleven o'clock in the morning as here assembled, by him, whose interest in the welfare of this society was greater than that of any other member, you shall experience no more. It is well, therefore, that on this occasion a slight tribute of our appreciation of the services of this great and good man should appear on our records. To do justice, however, to the life and work of such a character is beyond the reach of a mind and pen so feeble as mine."

The speaker closed by giving extended sketches of the lives of the deceased members.

The following is a list of the officers elected for the present year:

President-W. C. Barry, Rochester.

Vice-presidents—S. D. Willard, Geneva; W. Brown Smith, Syracuse; George A. Sweet, Dansville; C. L. Hoag, Lockport.

Secretary and treasurer-John Hall, Rochester.

Executive committee—C. M. Hooker, Rochester; B. W. Clark, Lockport; C. W. Stewart, Newark; Nelson Bogue, Batavia; W. S. Little, Rochester; William P. Rupert, Lima; E. A. Powell, Syracuse; T. S. Hubbard, Fredonia; Nelson Smith, Geneva.

THE TREES OF N. E. AMERICA.

"C—, if you and I were to meet a man on the street and ask him his name, he could tell us. I wish a tree could do as much. Here are splendid specimens all around us, and I don't know one of them."

"Get a book that will help you."

"I cannot find such a book. I can find no book which, in simple fashion, will so describe the tree, from its foliage and bark and style, that I can recognize it."

"Then I will make one for you."

Such is the commencement of the preface of a handsome book with the title above, written by Charles S. Newhall,

and lately published by G. P. Putnam's Sons, New York.

We are pleased to say the promise of the preface is made good throughout the book. Two hundred and fifty pages of reading matter and engravings with a good index, comprise good descriptions of all the native trees of Canada and the Northern United States east of the Mississippi river, and also the more important of the introduced and naturalized species. The writer has endeavored to use simple English words in his descriptions, as equivalents for most botanical terms, and has succeeded so well that any intelligent reader, by reference to this book, may identify any particular tree of the region referred to. The scheme of analysis by means of the leaves is a good one, well executed and will prove useful. We regard this as an excellent, practical book which cannot be too widely known or employed. Anyone interested in trees can consult it to advantage, and its use will have a tendency to lead to botanical study proper. It is a book that should be in every family and school library.

SCOTCH BROOM IN WASHINGTON.

I would like to call your attention to two plants which grow here. The first is a shrub of slender, bushy habit, called here Scotch Broom. It is evergreen except that the leaves fall in the dry season. The flowers are about the size and shape of a small pea blossom, and in color a bright yellow, they completely cover the bush making it one mass of gold when in full bloom.

I do not think it is strictly a native, though it grows wild in pastures and uncultivated fields, on sandy uplands, wherever I have noticed it. It was probably introduced here at some time from the old country, where, I am told, they did really make brooms of it. It adapts itself perfectly to our section though growing 6 to 8 feet high sometimes. Common as it is, it has sufficient beauty to make it an ornamental shrub in our town yards. It is perfectly hardy here where the mercury seldom reaches zero, though we sometimes have considerable snow and freezing weather. In open winters it often blooms a little all the season through.

The other plant is a lily, called here Deer Tongue Lily. It grows on the same soil and under the same conditions as the shrub. The blossom is white, the foliage tongue-shaped and spotted. Now, possibly these are neither of them new to you. I will send some twigs of the Scotch Broom that you may see. They may both have been tried and found wanting for general culture, but if they have not and some plants and bulbs would be acceptable for experiment I should be very glad to send them to you.

MRS. A. E. S., Tumwater, Thurston Co., Wash. From the specimen received we have no reason to doubt that the first mentioned plant is the genuine common

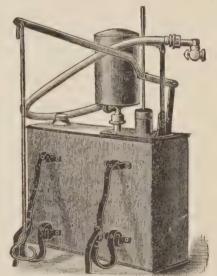
broom of Europe, Spartium scoparium of Linnæus, and Cytisus scoparius of later authors. Evidently it has found a congenial home in the new Western state. This plant will not survive many of our winters here at the East. We have known it to live for a few years in a poor way and then perish.

The Deer Tongue Lily described is probably an erythronium.

THE FIELD KNAPSACK SPRAYER.

A considerable number of kinds of spraying apparatus have been placed on the market to supply the demand of fruit growers and gardeners, and all of them have their own peculiar merits.

For small places, and especially for vineyards on somewhat steep hillsides, a form called a knapsack sprayer has been received with favor. A good form of this style of sprayer was examined by us, a short time since, and it apparently combines about all the desirable features of such an apparatus. It is made by the Field Force Pump Co., of Lockport, N. Y., and an illustration of it is here shown.



The tank is made entirely of copper and holds six gallons; it is furnished with two leather straps to carry easily upon the back, and when filled with liquid weighs about sixty pounds.

The pump is made entirely of brass and copper, and all its parts are so constructed that they can be easily detached and separated. To the air chamber is attached a discharge hose which is fitted with a Vermorel nozzle. The lower valve of this pump is made entirely of copper and brass, without leather or rubber packing, the only leather used being a small ring in the plunger valve. There is also

a ball valve used in the air chamber. The compression of the air in the air chamber causes the water to be driven through the discharge hose and nozzle with great force, and by the use of the Vermorel nozzle the finest, misty spray is produced. The large capacity of the air chamber holds in reserve sufficient power to keep up the pressure and continues to discharge the spray for fully one minute after the operator stops pumping.

The entire pump is securely soldered to a brass plate fastened to the top of the tank by screws, and can be easily removed.

PLANT INQUIRIES.

E. V. M., Wellsville, Mo., enquires the name of a plant which is the variegated Japan Euonymus, Euonymus Sieboldii variety, variegata. As to its being a blooming plant which the writer enquires, it may be said that it belongs to the flowering plants. Its flowers, however, are not very conspicuous, and so far as we know it has not bloomed under house culture. The plant is admired for its foliage.

The name cyclamen is pronounced with the accent on the first syllable, cy.

It is an advantage to wash the leaves of the cyclamen when rusty.

We can only surmise the cause of the buds of the cyclamen falling off when small, since but little account is given of the treatment the plant receives; the pots may not have drainage, and consequently the roots be water-clogged and comparatively inactive; or, what perhaps is most likely the case, the plant is kept in too high a temperature. Atmosphere of 60° is warm enough. The plant should have a good light—a full exposure to the sun-and as it has not had this and has been well watered, we think we cannot be far out of the way in saying that too much water, with too little sunlight and too high a temperature have formed a combination of bad conditions which have enfeebled it and made it unable to perfect its flowers.

The poor conditions named above for the cyclamen probably affect unfavorably also the primrose, which "loses its old leaves as fast as the new ones come out," and the rose which never fully opened its buds. Good drainage, good light and a rather cool temperature are necessary for all the plants named.

MOTHS AND BUTTERFLIES.

We wish that our younger readers, at least, could have the pleasure of reading a most entertaining book with this title, written by Julia P. Ballard and published by G. P. Putnam's Sons of New York. To know more or less about insects is becoming a necessity to those engaged in rural pursuits. If the acquisition of such knowledge can be made a pleasure we may hope that the young people of to-day may better prepare themselves in this respect, at least, for their life work, than their predecessors. No one can read the book mentioned without becoming interested in insect life. Mrs. Ballard has the happy faculty of imparting information in such a way as to make you relish it and hunger for more. The book is beautifully written, printed and illustrated, and wonderful things about moths and butterflies are told in such a way as to engage our interest in the actual observation of them.

The book reads more like a story than a work of science, and a story it is, but one that is capable of leading us into a realm of study as fascinating as it is important and vast.

VERANDA BOXES.

A well sheltered veranda space is a favorite place for house plants in summer with many ladies, and most frequently plants do well there. Sometimes a veranda is so exposed to the sun or to bad winds that plants do not thrive well there. but in all cases where they do they are ornamental, and, besides, they are where they can easily receive the attention they need. Within a few years there has commenced a practice, which we regard as a pretty one, of having long narrow boxes supported in front of the veranda rail and filled with blooming and trailing plants which make a fine show all the summer and fall. These boxes are made about six inches deep and eight inches wide and any desired length that the space permits.

Those anticipating the use of such boxes should remember to be in time with plants which are to be raised from seeds. Trailing plants are particularly useful for this purpose and tropæolums, maurandyas,

and thunbergias and nolanas are particularly desirable. Petunias can be grown to advantage, and Phlox Drummondii, blue lobelias, mignonette, godetias, sweet alyssum, Fenzlia dianthiflora, nierembergia, and other low-growing annuals.

A few plants of geraniums, fuchsias, and heliotropes can be made conspicuous, and also tuberous begonias and abutilons. Oxalis floribunda, Tradescantia zebrina and the green and the variegated periwinkles, and Vinca minor are also good trailing plants. The above are some of the best for the purpose, but there others which will do well and one can exercise his individual taste and preference.

PLANT QUERIES.

r. I have a purple oleander about eight inches tall, rooted last summer, also a yellow one the same age; this one has two branches about three inches long. Should the tips of both these plants be cut off in spring?

2. After Lilium Harrisii commences growth, should

the soil be enriched with liquid manure?

3. What treatment shall I give small bulbs of different varieties of amaryllis to hasten the blooming period?

4. If hollyhock and lychnis seed are sowed in February and given good care till time to transplant, will they blossom next summer or fall?

RAE.

I. The ends of the shoots of oleander may be shortened in a little and the tendency will be to make them branch

2. If the bulb is potted in proper soil it should make its growth without further assistance, but when it commences to bloom it may be watered with weak manure water.

3 Amaryllis bulbs are usually of slow growth and it is not well to try to force them. They require to become large and strong before blooming.

4. The lychnis undoubtedly will bloom in summer, but the hollyhock not until the following season.

MARCH WORK.

Tree and vine pruning should be completed this month before growth commences. Peas for an early crop need to be got in as early as the ground can be worked. The wrinkled or sugar peas should be held until the ground warms a little. Those intending to raise onions by the new plan of starting the seeds in cold frames, should have everything in readiness and get the seed in early, and have the young plants in readiness to set

out as soon as the ground can be put in good order. The advantages claimed by this method are full rows, a longer season of growth and less expense in cultivating and keeping clean—the expense saved in the last item making up for the extra cost of transplanting. A much greater yield is claimed for the method. But no time is to be lost in preparing the soil for onion seed to be sowed in the rows where the crop is to grow. The preparation and sowing cannot be done too soon. The seeds of lettuce and early cabbage, cauliflower, celery, tomatoes, and radish will need sowing at intervals as required, and the hotbeds and the forcing pits will command daily care.

Seeds of biennial and perennial flowering plants can be put in at once, and also the tender annuals early or later in the month according to the latitude. Sweet peas in the open ground should be planted at the earliest opportunity; they should make their best growth in the cooler weather of the spring.

Lawns can be seeded to grass as soon as the ground can be properly put in order.

All kinds of work that can be done in the garden this month should be pushed along and be out of the way when the hurrying time comes later, as it surely will.

THE COLD WEATHER IN FRANCE.

The excessive cold weather of the past autumn and winter in France has caused immense damage to all horticultural interests. Market gardeners, flower growers and nurserymen have lost very heavily -in fact the losses from this source are greater than were ever before known. Great anxiety is felt for the wheat crop which has received severe injury, but the extent of which can only be fully known when the milder weather comes. Questions connected with reseeding much of the area in winter wheat with spring wheat are being considered, such as the sources for obtaining seed wheat, preparation of soil, time of sowing, etc. Apparently the coming wheat harvest of France will be considerably shortened as a result of the severe weather.

The facts here stated in regard to France are equally true of some other portions of Europe.

OUR YOUNG PEOPLE.

A NAMELESS STORY.

IN TWO CHAPTERS .- CHAPTER I.

On low seats near a couch, where lay a precious life-long invalid, two sisters were pouring over a florist's catalogue, while a tiny little girl was saying:

"Well, if I can't have a canary bird for my truly own, then I want a canary vine,

and you must send for one."

At this her elders laughed, and, as she retired to have a little pout all to herself over her slighted suggestion, the only brother, large and overgrown, came dashing through the room simply because it was a shorter cut for him just then than to go another way.

"Carl, do, please, be more quiet," said Isabel; "sister Blanche had a suffering night, and she is nervous this morning."

"O, you always make more fuss than she does, just because you want to find fault with me. Blanche, I didn't hurt you, did I?"

"Not much, brother, dear; but I wish, for your own sake, you'd learn, gentle, quiet ways."

"Ho, I can't be like a girl, and I'm glad I'm not one," and out he went, banging

the door behind him.

"If he could only realize how I love him, and how mamma's heart is bound up in him," said Blanche, with hands clasped over her aching forehead, "I think it would soften him."

"he's too selfish for that," said Effie, "he's a perfect, boor. I don't see how such a boy got into this family. If he were like some boys, we all should nearly worship him."

"You are too severe," said Blanche. poisonous."

"Remember, he's not yet fifteen. I expect him to change greatly in the next hen near the two years. If papa's business had not the thing, taken him so much from home he would have been kept under control."

"Yes, he's very demure in papa's presence, and that gentleman can't be made to realize that his son is ever anything else."

"He'll come out all right, you'll see; how can he help it, being in this family?"

and Blanche smiled at the presumption of her inexperience. "Now we'll go on with the catalogue. I looked it over yesterday, and noted several points."

Then spoke up Effie—"I've already made up my mind to let sentiment govern my selection of flower seeds this time."

"What an idea," responded Isabel, "I don't see how you can apply it practically."

"That's because you don't understand. Allow me to explain. The popular names of many old-time flowers express a meaning; for instance, there's mourning - widow, heartsease, four-o'clock, love - in - a - mist, poor - man's - weather glass, snow-on-the-mountains, bleeding heart and forget-me-not, besides others; you'll see; and I shall grow them by themselves and go over their human-sense names to my friends, all in one lingo, for a surprise. I think even Ruskin would enjoy it, for you remember he once said. or wrote, that he thought some of the jaw-breaking names appended to poor little innocent plants must be of the devil's own contriving."

"There's butter-and-eggs, you might add to your list," suggested Isabel, with a shrug. "I'm sure that name is expres-

sive."

"You'd like to teaze me, but you'll not do it. Indeed, I will have butter-and-eggs, though it doesn't belong to my class, and perhaps I shall flank it with cowslip and chickweed, henbane is too poisonous."

"That makes no difference. Do put a hen near the eggs for the 'sentiment' of the thing, and don't slight monkey flower, for that would enjoy making faces at your love-in-a-mist; but leave me catchfly, snapdragon, foxglove, blazing star and fire cracker plant, if you please."

"I will, never fear. But Blanche, dear," said Effie, turning to the sweet, winsome face, "have you nothing to say in approval of my plan?"

"O, yes; it's a pretty fancy, and I'm sure quite original. But I am wondering if your different selections will thrive equally well in the same location and with the same treatment."

"Just as well as when our great-grandmothers raised them all together in one border."

"Perhaps so; but you must confess that they are so changed by high living and fine treatment (scientific, if you please), that they put on grand airs nowa-days, and hardly know each other when they meet in the same parterre, and possibly they've become more fastidious as to food and drink than formerly."

"I'll risk that; they shall all have good treatment, and you will see how they will thrive."

"I doubt it. I mean I doubt whether I shall see either their thriftiness or the reverse, as your flower beds and borders are always on the farther side of the grounds. This northern exposure is considered too cool and shady, you know, for anything but the turf that stretches over it, unbroken, year in and year out. For the same reason, no one has ever cared to try window plants here. And so everybody has tried to make up the deficiency by sending double quantities of cut-flowers to my room. I've had millions brought to me, but I don't know in the least how they grow, except as I have read of their habits."

"Why, Blanche Brewster! I never thought of it before," exclaimed Isabel. "And you've been longing to see them grow, and to study their habits and peculiarities? Of course, you have. And it would have helped pass away the time and given you something different to think about. We'll see whether nothing can be made to grow in this room," and she looked around and contemplated the two north windows very seriously.

"Why ferns grow in cool, shady places," she exclaimed; "they don't want the sun. And Mrs. Blake told me, last summer, that her day lilies do best on the north side of the house. I'm sure we can manage to find a number of things we can grow here."

"Bless your sweet heart, Isabel, don't get wrought up over this," said Blanche, taking her hand, "we'll talk it all over, some day, but not now. I know from my reading the names of more than a dozen plants that like shade and moisture—twice that number, perhaps. So there'll be no trouble in that direction. But let us resume the catalogue discussion now, and get through with that."

"Yes, for we must get our order off today. Where were we?"

"Just discussing my proposed mixture of plants," said Effie.

"And I," said Blanche, "was about to propose that you add two or three memorial plants to your collection. They would embody sentiment of a pathetic kind. You could begin with one for Professor Gray, our own grand American botanist."

"Yes, but *one*? What plant would represent him especially—a man who was equally familiar with thousands?"

"I'll tell you. A certain geranium, with beautiful salmon-colored flowers, was long ago named the Asa Gray, by one of his admirers."

"O, I see; a lovely idea. Of course, I'll have that, and down goes the name in my list. What next?"

"A foreigner, Russian, I think, by the name of Eschscholtzia, died in California, far from home and friends, while searching for floral treasures. One of those he discovered (the California poppy) was named for him."

"Until this moment I have classed that dreadful name with those of satanic origin. It will never look so forbidding again. Poor man."

"Then there was the zealous Mr. Douglas, who added many prizes to the lists of florists, and who finally lost his life on one of the Sandwich Islands, by falling into a cattle-pit, while on a collecting tour. I know of no plant that has been dedicated to him, but yesterday I selected one that he found in California, for its brilliant, metallic-yellow flowers—the Bartonia aurea."

"Of course, I want that." Here Isabel interposed:

"And, of course, you'll want to set your mourning - brides and bleedinghearts next to that group, so appropriate, you know. And here's a point for you. But first, Blanche, dear, aren't you getting weary? Mamma doesn't allow us to tire you."

"O, no, I'm so interested that it helps me to forget the pain."

"Well, then, I'll resume. Effie, if you

want to secure the long-throated Four o'clock—the pure white and the violet, and, of course, you do—you must order the Mirabilis longiflora. And here is something to know. 'The godetia, red, pink and white, blooms best in a poor soil.'"

"Glory! let's get pounds of it and scatter everywhere. Such a time as we do have to get this clay soil rich and mellow."

"Here's a darling plant for a hanging basket—just the thing now, when yellow is so popular; '— from Mexico — of creeping, drooping habit, with yellow, double, daisy-like flowers.'"

"That would be lovely and something

different. Do tell us its name."

"Well, here it is, 'Sanvitalia procumbens flore-pleno.'"

"You don't say!"

"I do, verily. Here's an item for you: The forget-me-not — Myosotis—if cut and put into water will go on blooming and take root.'.... Blanche, did you notice this? 'Whitlavia, from California, likes shade; is proof against cold and wet. A whole branch of its blue and white bells will bloom out in water and last several days, if cut when the lower buds are ready to open.' Just the plant, dear, for the north garden we are going to have."

"Yes, I hear. I've really decided what I want for a hanging basket—one each of the ice and the dew plant. I think their cool, icy-looking branches will be refreshing to behold in mid-summer. I noticed they were recommended for baskets."

"You Precious! indeed, you shall have them; we'll send for seed, and-but no matter now, I have a plan in my head. Here's another item. 'Salvia makes a nice winter house plant if potted in the fall.'... 'Portulaca and nolana do not mind heat and drought.' 'The Fuchsia was so called from a German botanist by the name of Fuchs. It is best planted in a shady place.'. Do not raise the ground for plants that suffer easily from drought.'... 'Sunflower, native of Peru-in old times considered sacred to the sun-worn by the virgins of the sun at the festivals of the Incas.' "

Here Effie interrupted, "Do you realize this is not completing our seed list?"
"Mine is nearly made out. Besides

what you've heard me mention, I have the double sweet alyssum, the prickly poppy, Argemone, from Peru, for a short hedge, the Asperula, azurea setosa, from the Caucasian Mountains, for massing in a border (blue flowers are less common than other colors): the Swan River Daisy, Brachycome, from Australia—'an elegant little plant, flowers blue and white with a dark eye.' For a change in summer vines I'm going to have the Loasa, from South America. Its red and yellow flowers are large and showy, and its branches are covered with stinging hairs that have been known to teach a lesson to meddlers. Iknow where I shall put those vines. And here comes Tot; what do vou want now, darling?"

"Mamma says I may have some pitty vines to climb over my playhouse; an' she's writed the names on this paper,

tause she's too busy to come."

Isabel took the scrap from the child's hand, and read; "purple hyacinth bean and orange gourd," with the remark added, "These will amuse Tot and her playmates." She then searched for a description of these, but found none of that particular gourd, though there were numbers of very curious ones named. The other vine she found is known as *Dolichos*, and was pleased to learn that it "rejoices in heat and drought," and that "the seed-pods are as pretty as the flowers."

That evening Isabel had a long talk with her father, who happened to be at home "between trips." The result was, that before leaving again he had a private talk with Carl. Said he:

"Do you realize, my son, that you are almost a man in size, large and strong? Now, it strikes me that you will be the better for the use of some of that muscle outside of the violent strain of gymnasium practice. There is often something needing to be done about a place like this. You have all its benefits as a home and enjoy every rational privilege. Let me tell you something. It is just as much your place to keep up this home as it is mine. After children reach your age they owe something to their parents. The obligation is no longer all on one side.

Now, on Saturday next, I want you carefully to cut into blocks and lift the

sod between the lines I have stretched on the north side of the house. Lay the sods in piles, grass side down, and when I get home again we'll go on with the rest—soil must be renewed, leafmold filled in, and so on—so that flowering plants can thrive.

"When all is done, you'll be proud to know how much you have contributed to your invalid sister's happiness. We all feel that she's like an angel in the house, and that we cannot do too much for her. Of late, I fancy, she seems more frail each time I return, and it alarms me."

The only response Carl made to all this was, "I don't see how flowers out there can do her any good, anyway."

"Perhaps you'll live to see things differently," replied his father, and then bade his son good-bye. Ah, how many times in after life did Carl recall his ungracious, unresponsive manner at that parting?

The next few days passed by as usual. The invalid suffered and endured. Carl still made every one nervous with his rudeness upon the slightest provocation. The least service was rendered grudgingly, until even his doting mother thought of his future with dismay.

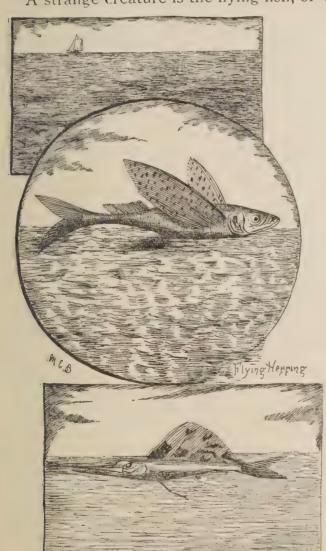
When Friday night came, Isabel was startled at midnight to see a pallid woman, bearing a dim light, approach her bed. Springing up, she exclaimed, "What is it, mamma?"

"Hush," was the answer; "Blanche must not hear. Carl has run away. His bed is untouched and his clothing gone."

MARIA BARRETT BUTLER.

TWO CURIOUS FISH.

A strange creature is the flying fish, of which there are two species one, the dac-



tylopterus, called the flying gurnard, the other the exocœtus or flying herring. These flying fish are found only in the tropical and sub-tropical seas. The flying herring is plentiful, but the gurnard is scarcer. The fish are seen oftener during rough than calm weather, and if pursued by enemies, or frightened by vessels, will dart from the water. The wings are without motion, except a slight vibration as the wind passes over them, and they do not move them as a bird or bat, to guide their course, but their flight is straight forward, and any deviation from this course is caused by the current of air passing over them. Their flight is generally rapid, and longer when flying against than with the wind, and they usually keep close to the water, although during windy weather they have been known to be carried high enough to fall on the decks of vessels.

Another queer fish is the sword fish. It also is found in the tropical and subtropical zones of both the eastern and western hemispheres. Some of the tropical species are of enormous size, and measure from twelve to fifteen feet in length, with swords at least three feet long. This sword is much the shape of a cone somewhat flattened, the end sharply pointed. It is smooth on the top and

sides, but the under part is rough. It is really an elongation of the bones of the upper jaw, and is possessed of very great strength, for with these weapons they have

ing of vessels and heavy plates and timbers, but although they can drive the sword far into these substances they can not draw them out, so break them off and swim away without them. A large fin extends nearly the length of the back of the creature, which is folded back when the fish is swimming, in order that its progress may not be impeded if speed is desired, but when quietly swimming it is often erected and acts as a sail to carry

been known to pierce the copper sheath- it through the water. The sword fish is very aggressive in its disposition, and will offen assail fish much larger than itself. Even the whale is not exempt from its attacks. The food of the sword fish consists of smaller fish which it kills by by stabbing them with its sword. There is quite a large business done in sword fishing, as the flesh is used for food. The larger species are caught by harpooning, the smaller in nets.

M. E. B.

EDITOR'S MISCELLANY.

PUBLICATIONS RECEIVED.

Moths and Butterflies, by Julia P. Ballard, \$1.50. The Trees of Northeastern America, by Charles S. Newhall, \$2.50. Both of the above, of which more extended notices are given elsewhere, are published by G. P. Putnam's Sons, New York.

Annual Report of the Maine State College Agricultural Experiment Station for 1889. A handsome volume of more than 300 pages. Among other matters, we specially note the Apple Maggot, which is a very complete monograph on Trypeta pomonella, and will prove of great value to orchardists in combatting this destructive insect.

Insect Life.—The January number of "Insect Life" is devoted entirely to the report of the Annual Meeting of the Association of Economic Entomologists, held at Champaign, Illinois, last November. Every page is full of practical information for farmers, gardeners and fruit growers. The address of the President, Dr. C. V. Riley, reviews the work and observations of the past year, and especially refers to the results of the operations of the National Department at Washington, notices the occurrence of the hop-fly in Oregon and Washington, the work of subduing the phylloxera in France and other European countries, the introduction of insect parasites, the use of bisulphide of carbon against grain weevils, insecticide machinery, apiculture, silk culture, and numerous other topics. A dozen other papers on practical subjects, by other writers make the number a most excellent one. Division of Entomology, United States Department of Agriculture.

Experiment Station Record, Vol. 2, No. 5, December, 1890. A valuable digest of many of the State Experiment Station Reports made in 1890. Published by authority of the Secretary of Agriculture.

Some Fungous Diseases of the Sweet Potato.—Such is the title of Bulletin No. 76, of the New Jersey Agricultural College Experiment Station. Seven species of mold are noticed which affect the tubers, and two the leaves. This Bulletin is the record of a great amount of careful work and study, and is quite fully illustrated. A valuable work for sweet potato growers

Hatch Experiment Station, Bulletin No. 11, Amherst, Mass.

Vermont State Experiment Station, Bulletins Nos. 21 and 22, Burlington, Vt.

Kentucky Experiment Station, Bulletin No. 31. Some Strawberry Pests. Lexington, Ky

University of Tennessee Agricultural Experiment Station, Bulletin January, 1891. Articles on Black Knot of the Plum and Cherry, Pruning Fruit Trees,

the Glassy-winged Soldier Bug, and experiments in growing potatoes have special interest for gardeners and fruitgrowers.

New York Agricultural Ex. Station, Bulletin No. 25. Oregon Agricultural Ex. Station, Bulletin No. 7.

University of Minnesota, Bulletin No. 13, A Treatise on Flax Culture. No. 14, besides other matter, has an extended article on Sugar Beets, their cultivation, process of manufacture, etc.

DIANE.

A chronicle of the reign of Charles IX, by Prosper Mérimée, translated by George Saintsbury. Chicago; Charles H. Sergel & Co. This is a historical romance somewhat after the manner of some of Sir Walter Scott's, and vividly traces the French court and political affairs in the latter part of the 16th century, and especially with reference to the influence and acts of Catharine de Medici, that monstrosity in the form of a woman. The work gives the reader a clear account of one of the most remarkable periods of French history, and is written in a most entertaining style.

STOLEN AMERICA.

A Story of Bermuda. By Isobel Henderson Floyd. Cassell Publishing Co., New York. This is a romance of much merit in itself, and as such will find many interested readers; but its special mission is as a vehicle to convey to our countrymen a knowledge of the war power which is held in reserve in the island of Bermuda for any possible contingency that may arise for its use against us as a nation by Great Britain. The writer, a daughter of the late Peter Henderson, is devotedly patriotic, and the crowning wish of her life is that our countrymen may know the weakness of our Atlantic seaport towns and cities, and provide ample means for their defence, if, unfortunately, there should ever be cause to employ them. Forewarned is forearmed. So may it be.

" MRS. BEN-HUR'S" NEW BOOK.

A brilliantly told story of travels in the lands where "Ben-Hur" lived, by the wife of the author of "Ben-Hur," is entitled "The Repose in Egypt; An Orient Medley." Mrs. Wallace writes with a peculiar charm. There is a happy abandon and winsome cheerfulness manifest, that gives the narrative a character of its own. The volume is a handsome one, finely illustrated, price is nominal—only 50 cents, plus 12 cents if by mail. Descriptive catalogue of popular and standard books may be had free, by addressing the publisher, John B. Alden, 393 Pearl street, New York.

FILLS THE BILL

"The bill of fare is all right, waiter; but I am not." "What's de trouble, sah?" "No appetite—that's the trouble." "Well, sah, day's anoder gemmen comes yere as useter be troubled dat a way." "Yes? And how is he now?" "Te-he!



And how is he now?" "Te-he! Plenty appertite now sah." "That so? What did he do?" "Did n't do nuff'n', sah. He on'y went an' took

Ayer's Sarsaparilla

da 's all — an' now he kin eat de whole bill, an' arx fo' mo'!"

Pompey was correct. To strengthen the appetite and relieve dyspepsia, Ayer's Sarsaparilla has no equal.

"For several years I was a great sufferer from dyspepsia. I tried all kinds of remedies without avail, until, by the advice of a friend, I began to take Ayer's Sarsaparilla and Ayer's Pills. I soon felt the benefit of this treatment. In three months I was completely cured of the complaint that afflicted me so long, and from which I had but little hope of recovery."—Mrs. MARY RIELLE, Little Canada, Ware, Mass.

"I have found Ayer's Sarsaparilla an excellent remedy for indigestion."— (Rev.)
J. L. MORIN, Holyoke, Mass.

"For some five years I was troubled with sour stomach and indigestion, but was relieved and cured by using Ayer's Sarsaparilla. I believe this remedy has done me more good than any medicine I ever took."—Jos. A. VERGE, 75 India st., Boston, Mass.

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Prepared by Dr. J. C. Ayer & Co., Lowell, Mass. Sold by all Druggists.

Has Cured Others, Will Cure You

THE HAIR

When not properly cared for, loses its lustre, becomes crisp, harsh, and dry, and falls out freely with every combing. To prevent this, the best and most popular dressing in the market is Ayer's Hair Vigor. It removes dandruff, heals troublesome humors of the scalp, restores faded and gray hair to its original color, and imparts to it a silky texture and a lasting fragrance. By using this preparation, the poorest head of hair soon becomes luxuriant and beautiful. All who have once tried Ayer's Hair Vigor, want no other dressing.

"I have used Ayer's Hair Vigor with great benefit and know several other persons, between 40 and 50 years of age, who have experienced similar good results from the use of this preparation. It restores gray hair to its original color, promotes a new growth, gives lustre to the hair, and cleanses the scalp of dandruff."—Bernardo Ochoa, Madrid, Spain.

Ayer's Hair Vigor

Prepared by Dr. J. C. Ayer & Co., Lowell, Mass. Sold by Druggists and Perfumers.

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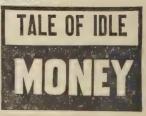
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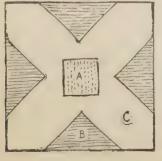
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